

SOUTH AFRICAN ASCOMYCETES

IN THE

NATIONAL HERBARIUM.

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PART I.

MOST of the South African fungi described in the early days were collected by MacOwan, Medley Wood, and others, who made a practice of sending a part of their material to Europe for determination and retaining the duplicates; many of these duplicates are now incorporated in the National Herbarium. These specimens are not strictly co-types, as they were not examined by the describers of the species, but since the specimens were all numbered, one rarely finds that they are not identical with the type specimens bearing the same numbers. The same applies to specimens sent to Sydow in more recent years, descriptions of which were published in the "Annales Mycologici."

Many alterations in nomenclature and classification have been introduced of late years, chiefly by V. Höhnelt, Theissen, and Sydow, who have published revised descriptions from the type specimens. In some cases it is possible to add a few details to these descriptions from more abundant and more recent collections, and to record the fungus on other hosts and from new localities.

There are also a number of ascomycetes in the Herbarium which have been previously recorded from other parts of the world, or which are apparently undescribed.

In every case the numbers quoted in square brackets are those of the mycological section of the National Herbarium.

I am indebted to Mr. W. E. Schilz for the preparation of a fine series of sections of the fungi under consideration and for considerable assistance in the translation of some of the descriptions from the original German.

1. *Schneepia radiata* Doidge.

Syn. *Lembosia radiata* Doidge (South African Microthyriaceae, Trans. Roy. Soc. South Africa, VIII, Part 4, 1920).

On leaves of undetermined shrub (Leguminosae) Rikatli, Portuguese East Africa, Junod [11729].

This fungus was originally described as a *Lembosia*, but by studying sections through the leaf of the host an intramatrical hypostroma may be detected. This consists of a colourless hyphal mass lying between the cuticle and the epidermis, and sometimes penetrating downwards into the epidermal cells. In certain of the epidermal cells compact balls of dark coloured hyphae are formed, and at these points the fungus breaks through the cuticle to form the ascostroma.

The ascostroma is attached at several points and is almost 40 μ high; the hypothecium is thin and colourless.

The intramatrical hypostroma with superficial ascomata is typical of the *Polystomelaceae*; the radial arrangement of the loculi which are attached at several points, the paraphysate asci, and two-celled brown spores are characteristic of the genus *Schneepia*, to which this fungus must therefore be referred.

2. *Cycloshizon brachylaenae* (Rehm), P. Henn.

Engl. Bot. Jahrb. XXXIII, p. 39 (1902); Syll. Fung. XVII, p. 896.

Syn. *Schneepia brachylaenae* Rehm, Hedwigia 1901, p. 173.

On living leaves *Brachylaena neriifolia*, Bains Kloof, near Wellington, C.P., 12.11.10, Doidge [981].

On *Brachylaena dentata*, Port Elizabeth, West [761]; Van Stadens Pass, 9.3.16, Bottomley [9562]; Van Stadens Pass, 17.5.18, Pole Evans [11445].

On *Brachylaena discolor*, Lemana, Zoutpansberg District, 14.8.11, Doidge [1789]; Duikerfontein, Natal, 10.10.11, Moon [1887]; Port Shepstone, Natal, 15.10.12, Pole Evans [5605]; Umgeni, near Durban, 15.11.16, V. d. Bijl [10088].

On *Brachylaena elliptica*, East London, 24.11.17, Doidge [10912].

On *Brachylaena* sp., Rikatli, Portuguese East Africa, September, 1918, Junod [11724].

Sydow [Ann. Myc. XIII (1915), p. 207], described this fungus in detail from the type specimen (Exsicc. Rabh. P., F. Eur. et extra-europ., 4264), which agrees in every respect with the material in the National Herbarium. The original is evidently not quite mature, and in this connection Theissen and Sydow writes as follows:—"Die Art unterscheidet sich generisch nur durch die farblosen Sporen von *Dielsiella*; da die Arten des Originals noch nicht ganz ausgereift sind, wäre es nach diesem Exemplar nicht ausgeschlossen, dass die Sporen sich später bräunten; dan fielen die Gattung *Cycloshizon* mit *Dielsiella* (1903) zusammen und letztere müsste gestrichen werden. Zu demselben Ergebnis kam V. Höhnle (Fragm. n. 634 und 635). . . . Das oben erwähnte Exemplar auf *B. dentata* scheint jedoch völlig ausgereift zu sein. Wir fanden hier schon ausserhalb der Schläuche zahlreiche, stets völlig hyaline Sporen, Wahrscheinlich stellt *Cycloshizon* daher eine gute Gattung dar."

After examining the abundant material detailed above, it is evident that the spores of *Cycloshizon brachylaenae* become fuscous, and later brown, at maturity. The genus *Dielsiella* is therefore identical with *Cycloshizon* and the species *Dielsiella pritzelii* P. Henn., and *D. alyxiae* (Mass) Th. and Syd. become *Cycloshizon pritzelii* (P. Henn.) and *C. alyxiae* (Mass), respectively.

An apparently undescribed species on *Catha edulis* also belongs to the genus *Cycloshizon*, and is described below.

3. *Cycloshizon fimbriatum* n. sp.

On living leaves of *Catha edulis*, Letaba Drift, Zoutpansberg District, 6.8.11, Doidge [1798] and [1833]; Rikatli, Portuguese East Africa, 31.5.18, Junod [11682]; Louis Trichardt, 8.4.19, Putterill [11835].

Stromata amphigenous, scattered, circular, 1.5 to 2 mm. diam., surface dull black, crustaceous, with an irregular annular ridge marking the position of the loculi; attached to the leaf by a massive central foot, which is black and pseudo-cellular, arising from a dense hypostroma. The hypostroma consists of closely interwoven and packed hyphae, which completely destroy the palisade cells or the mesophyll cells in the immediate vicinity of the foot and penetrate right through the thickness of the leaf in the intercellular spaces. The increasing pressure of the hypostroma ruptures the epidermis, and at this point the foot is formed.

Except for the central foot, the stroma lies free on the leaf surface. The outer membrane is radial in structure, rather loosely interwoven, and composed of hyphae 3.5-4 μ thick. At the periphery it spreads out into a short fringe of brown, radiating hyphae about 3.5 μ thick; these are undulating, branched, and sometimes more or less

coherent. The central portion of the stroma is sterile, the loculi being arranged in a circle round the centre; loculi linear, about $270\ \mu$ wide and $100\text{--}115\ \mu$ high, dehiscing by a longitudinal fissure. Hypothecium pseudo-cellular, rather pale.

Asci paraphysate; ovate when immature, thick walled above, $60\ \mu \times 30\text{--}33\ \mu$, and with irregularly tristichous or conglobate spores. Mature asci clavate or ellipsoid, $75\text{--}90\ \mu \times 23\text{--}26\ \mu$ with distichous spores. Asci stain brick red with iodine; there is no blue reaction.

Paraphyses numerous, hyaline, linear, about $2.5\ \mu$ thick. Spores brown, opaque at maturity, two-celled, slightly constricted, ellipsoid, cells equal or sub-equal, $28\text{--}30\ \mu \times 12\text{--}13.5\ \mu$.

Cycloshizon fimbriatum Doidge, n. sp.

Stromata amphigena, sparsa, $1.5\text{--}2$ mm. diam., superficialia, centro affixa; centro sterili magno $400\text{--}500\ \mu$ diam.; irregulariter radiatim ex hyphis septatis $3.5\text{--}4\ \mu$ crassis brunneis composita, ambitu hyphis longiusculis radiantibus, $3.5\ \mu$ crassis, flexuosis, ramosis cincta; loculo annulari integro v. interrupto, $270\ \mu$ lato, $100\text{--}115\ \mu$ alto, rima longitudinale aperto. Asci paraphysati, clavati v. ellipsoidei, $75\text{--}90\ \mu \times 23\text{--}26\ \mu$, octospori, paraphysibus numerosis, hyalinis, linearibus, $2.5\ \mu$ crassis. Sporae brunneae, oblongae, medio vel paullo supra medium septatae, leniter constrictae, ad apicem rotundatae, $28\text{--}30\ \mu \times 12\text{--}13.5\ \mu$.

Hab. in foliis *Cathae edulis*, Zoutpansberg Dist., Transvaal, 6.8.11, leg. Doidge [1797].

4. *Cocconia porrigo* (Cke.) Sacc.

Syll. Fung. VIII, p. 738.

Syn. *Rhytisma porrigo* Cke., Grevillea X, p. 129 (1882).

On leaves of *Olea capensis*, Inanda, August, 1881, Wood No. 660 [10702]; Van Stadens Pass, C.P., 13.11.17, Doidge [10888].

Stromata amphigenous, but mostly epiphyllous, not crowded, round, flat, dull black, up to 5 mm. diameter; central portion raised and rugose, $120\text{--}140\ \mu$ thick. In the smaller stromata there is a regular circular loculus forming a ring round the centre, and within it a second smaller loculus which may be circular, S-shaped, or irregular. In the larger stromata there are several concentric, circular loculi. At the periphery the covering membrane is thin and membranaceous with lobed margins, and consists of radiating, brown, septate hyphae which are $4\text{--}4.5\ \mu$ thick. Hypostroma extensive, in and under the epidermis, dark, breaking out at many points and spreading horizontally on the cuticle; thus it forms a layer of short, septate hyphae about $26\text{--}30\ \mu$ thick, which becomes gradually thinner towards the periphery. Covering membrane radial in structure, carbonaceous, $30\text{--}40\ \mu$ thick. Height of stroma $140\text{--}160\ \mu$. Asci broadly ellipsoid, $80\text{--}85\ \mu \times 27\text{--}30\ \mu$ with distichous or tristichous spores. Paraphyses filiform. Spores dark brown, $30\text{--}33\ \mu \times 11\text{--}13\ \mu$, two-celled, constricted; loculi unequal, upper cell about $14\text{--}16\ \mu \times 13\ \mu$, broader and shorter than the lower cell, which is $16\text{--}18\ \mu \times 11\ \mu$.

5. *Cocconia concentrica* Syd.

Ann. Myc. XIII (1915), p. 215.

Syn. *Hysterostomella concentrica* Syd. Ann. Myc. VII (1909), p. 544; Syll. Fung. XXII, p. 556.

Hysterostomella circularis, Har. et Pat. Bull. Mus. Hist. Nat., 1911, p. 368.

On *Trichilia emetica*, Lourenço Marques, 24.9.08, T. R. Sim [508]; Umbelusi R. Portuguese East Africa, 9.11.10, Howard [1019]; Rikatli, P.E.A., September, 1918 Junod [11728].

This fungus has only been recorded from East Africa on *Trichilia emetica*.

It has been described by Sydow (*loc. cit.*) as follows:—On the upper side of the leaf there appear numerous concentric rings of small, black, punctiform bodies, which gradually

develop into small round discs. These form the central part of the stroma, and they later coalesce, forming stouter linear stromata which still show the original ring formation. Meanwhile the concentric ring formation continues at the periphery. The mature stroma is crustaceous in the centre, the original disc-like bodies having become confluent radially as well as laterally, but the concentric circles are still evident; the outer circles still comprise discrete, round, immature discs. The separate stromata vary considerably in length.

A transverse section through a collective stroma, which also passes through single stromata, shows a chain of fruiting bodies with central attachment, and with a sterile central portion.

The single stromata are thus attached to the leaf by their long axis, lying free on both sides of the keel formed by the line of attachment. They are 320–420 μ high. Beneath the sterile central portion the hypostroma fills the epidermal cells of the host in an area extending 100–120 μ in diameter. The hypostroma is not continuous, but more or less interrupted; and it produces numberless fine brown hyphae which pierce the cuticle and appear on the surface as a compact stroma. Asci club-shaped cylindrical, thick-walled round the apex, very briefly pedicellate, 45–55 $\mu \times$ 14–18 μ , eight-spored. Spores distichous, elongated, rounded at both ends, two-celled, brown, 14–18 $\mu \times$ 4–5 μ . Paraphyses filiform exceeding the asci in length, united above, and forming a somewhat coloured epithecium.

6. *Cocconia capensis* n. sp.

On leaves of *Ochna arborea*, Howiesons Poort, near Grahamstown, 12.7.19, Doidge [12373].

Stromata epiphyllous, round, dull black, minute, up to 1.5 mm. diam., in appearance rather like a scale insect, centre raised, 130–150 μ high, margin flat, appressed to leaf surface; centre sterile, surrounded by a single circular loculus, 240–270 μ broad; covering membrane black, opaque, about 13 μ thick over the loculus, at the edge becoming somewhat lobed, thin, flat, and light coloured, consisting of fuscous, radiating hyphae, 3–3.5 μ thick.

Hypostroma very well developed, penetrating right through the leaf and forming a tangled web of hyphae in the intercellular spaces. At certain points the hypostroma becomes much thickened in the epidermal and subepidermal cells, and the hyphal mass becomes dark coloured and cellular, the cells being 6–7 μ diam.

It breaks through the cuticle and forms a short column of elongated cells, certain of which spread out radially on the leaf surface to form the hypothecium, and others growing to a higher level form the central sterile portion of the stroma, and give rise laterally to the covering membrane. The hypothecium is brown, 30–36 μ thick and similar in texture to the hypostroma, but the cells are flattened and elongated in a radial direction. There are numerous secondary points of attachment along the axis of the loculus.

Asci clavate, eight-spored, pedicellate, thickened round apex, paraphysate, 65–70 $\mu \times$ 22–25 μ , they do not react to iodine; paraphyses numerous, filiform. Spores two-celled, brown, 21–23.5 $\mu \times$ 9–10 μ , slightly constricted; in immature spores the cells are markedly different in form, they are equal in length, but the upper loculus is spherical, 9 μ diam., and the lower clavate, tapering from 7 μ at the centre to 4 μ at the tip. In mature spores the difference is less marked.

Cocconia capensis Doidge nov. sp.

Stromata epiphylla, sparsa, rotundata, atra, minuta usque 1.5 mm. diam., 130–150 μ alta, pluries affixa, radiato ex hyphis 3–3.5 μ cr. contexta; loculo unico annulari, 240–270 μ lato, hypostromate epidermali et sub-epidermali oriunda. Hypothecium brunneolum 30–36 μ cr. Asci clavati, paraphysati, octospori, pedicellati, ad apicem incrassati, 65–70 $\mu \times$ 22–25 μ ; paraphysibus numerosis filiformis. Sporae brunneae, sub-clavatae, 1-septatae, constrictae, 21–23.5 $\mu \times$ 9–10 μ , loculo supero latiore.

Hab. in foliis *Ochnae arboreae*, Howiesons Poort, 12.7.19, leg. Doidge [12373].

7. *Hysterostomina tenella* Syd.

Ann. Myc. XIII (1915), p. 228.

Syn. *Hysterostomella tenella* Syd. Ann. Myc. X (1912), p. 442.

On *Asparagus striatus*, Despatch, near Uitenhage, 23.3.11, Doidge [1241].

On *Asparagus* sp., Kentani, 19.3.12, Pegler [2240]; 3.6.12, Pegler [2362].

Stroma flat, membranous, dull black, 2–10 mm. long, irregular in shape, 70–80 μ high, on both sides of the leaf, or more or less clothing the stem. Loculi very closely crowded, irregularly arranged, dehiscing by a longitudinal slit; covering membrane radial, dark brown to black, opaque, formed of hyphae 3–4 μ thick. Hypothecium very thin, light brown. Asci paraphysate eight-spored, at first broad, oval, with conglobate spores; later becoming elongated, with distichous spores; very thick walled at the upper end, 45–60 $\mu \times$ 16–20 μ . They do not react to iodine. Spores dark brown, strongly constricted, cells spherical, sub-equal, elliptic-oblong, rounded at the ends, 13–16 $\mu \times$ 6–8 μ . Hypostroma not well developed; it can only be detected in the stomata in the form of pegs, 20–25 μ high and 14–16 μ thick, which do not penetrate into the intercellular spaces.

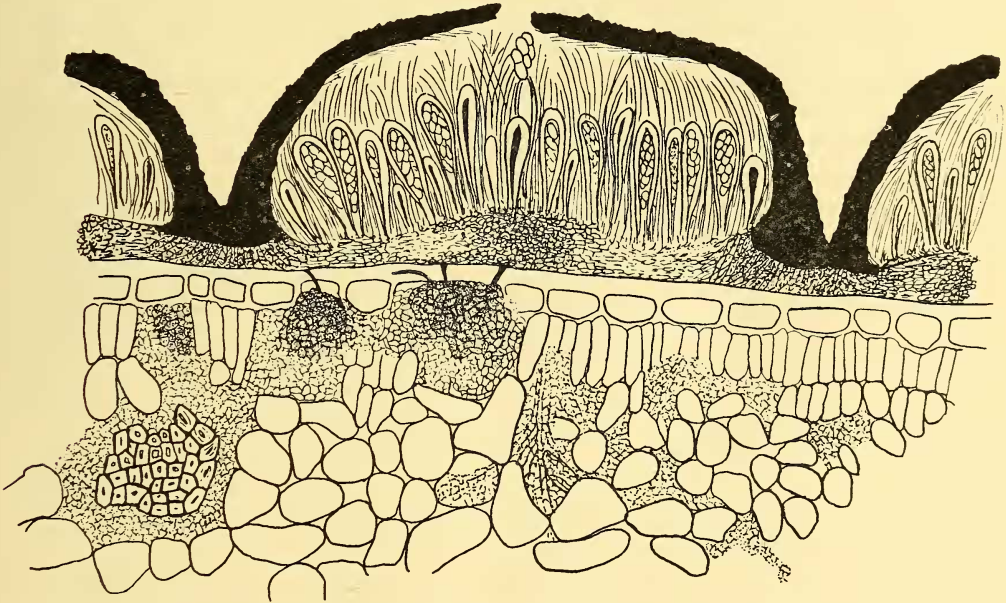


Fig. 1.—Section through loculus of *Macowaniella congesta*, showing hypostroma.

8. *MacOwaniella* Doidge, nov. gen. *Polystomellacearum*.

Stromata superficialia, radiato-contexta ex hypostromati epidermali et sub-epidermali oriunda; loculis linearibus, rectis v. curvulis, inordinate nidulantibus. Asci paraphysati octospori. Sporae phaeodidymae. Mycelium superficiale ramosum, septatum.

This genus differs from *Hysterostomina* in the presence of free mycelium, and from *Lembosiodothis* in the absence of sub-cuticular bands. The hypostroma is deep-seated in the tissues and is not sub-cuticular.

MacOwaniella congesta (Wint.), Doidge.

Syn. *Lembosia congesta* Wint., Syll. Fung. IX, p. 1105 [Wint. Exot. Pilze in Flora, 1884, p. 9].

On leaves and stems of *Carissa arduina*, Lemana, Zoutpansberg, 14.8.11, Doidge [1786]; Isipingo Beach, Natal, 21.5.17, Doidge [10155]; Cango Valley, Oudtshoorn

Dist., 9.11.17, Doidge [10898]; Woodville Forest, George, 11.11.17, Doidge [10929]; Howiesons Poort, Grahamstown, 17.11.17, Doidge [10960]; Lovedale, Alice, 18.11.17, Doidge [10979]; Hoggs Back, C.P., 15.1.18, J. and M. Henderson [11345]; Grahams-town, 1917 [11369].

On *Carissa grandiflora*, Isipingo, Natal, 27.3.18, Bottomley [11380]; Krantzkloof, Natal, 26.5.15, Doidge [8983].

On *Carissa acuminata*, Stella Bush, Durban, 7.4.18, Bottomley [11381].

This fungus was originally described by Winter from material collected by MacOwan.

In his "Lembosia-studien" [Ann. Myc. XI (1913), p. 457], Theissen mentions this species, and dismisses it with a single sentence: "Der Beschreibung Winter's ist nur hinzuzufügen, dass die an hyalinen Hyphenbüschel entstehenden Konidien sichelförmig sind, einzellig, beid endig spitz, farblos, $20\ \mu \times 2\ \mu$." However, he omits it from his synopsis of species, and from this one would gather that he was doubtful about its systematic position.

The fungus on *Carissa arduina* is very common throughout the country, and with the abundant material at my disposal I have made a careful study of sections through the host, and find that it has a very abundant and well-developed hypostroma. It must therefore be placed in the Polystomellaceae. It differs from *Hysterostomina* in the presence of fairly well-developed superficial mycelium. I have therefore made it the type of a new genus *MacOwaniella*.

MacOwaniella congesta occurs on the younger branches of *Carissa* spp., less frequently on the leaves. Stromata, superficial, round or elliptic or irregular in shape up to 4 mm. diameter; loculi linear, straight, curved, or flexuous, closely crowded, irregularly arranged, $500\text{--}800\ \mu$ long and $180\text{--}220\ \mu$ broad; less frequently oval, attenuated towards both ends, $280\text{--}340\ \mu \times 160\text{--}175\ \mu$; rarely almost circular, $160\text{--}190\ \mu$ diam., $120\text{--}140\ \mu$ high, dehiscing by a longitudinal slit. Hypothecium pseudo-cellular, colourless or light brown in centre, consisting of thin-walled plectenchyma. Covering membrane radial in structure.

Hypostroma strongly developed, penetrating deep into the tissues, forming closely packed masses of interwoven hyphae in the intercellular spaces and in the cells. These are especially evident in the epidermal and sub-epidermal cells under the fruiting bodies, where at intervals the hyphal mass becomes thick walled and dark brown to black in colour, and is connected with the ascostroma by slender, brown to black, fungous pegs about $6\ \mu$ thick, which pierce the cuticle. At or near the point where the cuticle is pierced the dark hyphae often penetrate laterally into the cuticle for a short distance.

Asci oblong to clavate, attenuated into a short foot, eight-spored, paraphysate, $60\text{--}70\ \mu \times 21\text{--}26\ \mu$. Paraphyses filiform, often forked at the apex, tips more or less conglutinate. Spores conglobate or sub-distichous, oblong, 1-septate, constricted, fuscous when mature, $17\text{--}18\ \mu \times 7\text{--}9\ \mu$.

Mycelium on the leaves well developed, fuscous, undulating, abundantly branched, and anastomosing, with a few sessile, dark brown, hemispherical hyphopodia, $6.5\text{--}8\ \mu \times 6.5\ \mu$ on the primary hyphae; mycelium on the branches not so well developed, hyphae straighter, more slender, $3.5\text{--}5\ \mu$ thick, branches parallel, with occasional elongated reticulations.

9. *Asterodothis solaris* (K. and Cke.) Theiss.

Ann. Myc. X (1912), p. 179; Ann. Myc. XIII (1915), p. 232.

Syn. *Asterina solaris* K. and Cke., Grevillea IX, p. 33; Syll. Fung. I, p. 42, on *Olea verrucosa*, South Africa, Rabh. W., F. Eur. 365.

Lembosia albersii P. Henn., Bot. Jahrb. XXVIII, p. 39; Syll. Fung. XVII, p. 897, on *Elaeodendron* sp., East Africa.

Seyesia elegantula Syd., Engl. Bot. Jahrb., 1910, p. 463; Syll. Fung. XXII, p. 522, on *Xymalos* sp., Uganda.

On *Olea verrucosa* leg. MacOwan, 3991, Rabh. F. Eur. 3651; Wellington, C.P., 10.11.10, Doidge [1033]; Langholm Estates, Bathurst Dist., 14.7.19, Doidge [12346]; Barberton, 30.2.15, Thornicroft [8826].

On *Olea exasperata*, Belmont Valley, Grahamstown, 15.1.17, Doidge [10955].

On *Olea capensis*, Van Stadens Pass, 17.5.18, Pole Evans [11444]; Hoggs Back, C.P., 15.1.18, J. and M. Henderson [11339]; Paddock, Natal, 22.12.13, V. d. Bijl [8875].

On *Olea woodiana*, East London, 24.11.17, Doidge [10902].

On *Olea laurifolia*, Hoggs Back, C.P., 15.1.18, J. and M. Henderson [11343]; Kirstenbosch, December, 1916, Glover [10043]; Howiesons Poort, Grahamstown, 12.7.19, Doidge [12387]; Fort Cunynghame, March, 1915 [8896]; Schwarzwald, Victoria East, C.P., 11.8.15, V. d. Bijl [9464].

On *Elaeodendron croceum*, Kentani, 20.7.12, Pegler [2533]; Pirie Forest, Kingwilliamstown, 8.7.19, Doidge [12288]; Knysna, 3.6.12, Pienaar [2435].

On *Elaeodendron capense*, Grahamstown, 13.12.11, Burt-Davy [2070]; Pirie Forest, Kingwilliamstown, 8.7.19, Doidge [12295].

Stromata amphigenous but more frequently epiphyllous, forming dark brown to black, orbicular spots up to 2–4 mm. diam. These are usually quite distinctly radiate and fibrillar in structure, even to the naked eye.

The hypostroma may be detected within the leaf, lying between the epidermis and the palisade cells, and pushing down between the latter. In the *Elaeodendron* spp. there is more than one row of epidermal cells; but even then the internal mycelium penetrates between all the rows of cells as far as the palisade tissue. At certain points the hypostroma becomes much thickened and a hyphal mass is produced above the palisade cells which gives rise to a short, dark, cylindrical column of perpendicular prosenchymatous structure. This column or foot ruptures the epidermis and the hyphae composing it flatten out horizontally and form the stroma; certain of the hyphae form a hypothecium about 10 μ thick, and others growing to a higher level produce the radial covering membrane. The illustration of the stroma of *Asterodothis solaris* in the *Annales Mycologici* [13 (1915), Tafel I, Fig. 10] is somewhat misleading, as it depicts the loculi in close contact with the central column. This is not always the case, as in the large number of sections examined of the fungus on various hosts the central part of the stroma was sterile and the loculi were at some little distance, closely crowded, forming a sort of crown round central point or being irregularly scattered about the centre.

The central part of the stroma as seen in a surface section may be parenchymatous in structure, in which case the loculi show as small mounds; but frequently the loculi appear as dense black bodies borne on radiating hyphal strands which are more or less connected with one another. The loculi (external measurement) are round 200–250 μ diam., or oval, 250–300 μ \times 140–200 μ ; they dehiscence irregularly by a stellate or longitudinal fissure.

In section the loculi are 120–160 μ high, and are connected with the intramatrical hypostroma by numerous dark coloured fungus pegs which pass through the stromata. This fact is not mentioned by Theissen.

Radiating from the stroma are numerous hyphae which are almost straight, dark brown, septate, 5–6 μ thick; these often become adnate by their radial walls and form hyphal strands. The hyphae produce branches, which form acute angles with the parent hypha.

On the hyphae are borne numerous outgrowths which may be regarded as rudimentary setae or bristles. These are sometimes very short and almost like hyphopodia in appearance; more frequently they are more or less erect, truncate, and up to 25 μ \times 7–8 μ . On the hyphae are also borne very dark brown, club-shaped conidia, which are 3–4 septate, blunt at the ends, and 36–42 μ \times 11–12 μ .

The fruiting layer is flat and the asci parallel, oval to clavate, eight-spored, 70–90 μ \times 24–28 μ . Paraphyses numerous, filiform. Spores distichous, ellipsoid, reddish-brown, smooth, 27–31 μ long, upper cell 10–12 μ broad, lower cell 8–10 μ broad.

The spores have a peculiar method of germination, the germ tubes appearing on the medial constriction between the two loculi, one on each side.

A fungus with a similar conidia to *Asterodothis solaris* has been collected on *Myrsine melanophleas* [10908] and [8995], but unfortunately neither of these two collections bear mature ascostromata.

10. *Polyrhizon bewsii* n. sp.

On living leaves of *Elaeodendron aethiopicum*, Bisley, near Maritzburg, Natal, 11.4.17, Bews [10087]; 20.7.18, Doidge [11592].

Stromata amphigenous, scattered, raised, round to irregular, about 1 mm. diam., simple or compound, in the latter case 2-3 or more stromata arising close together become confluent. There is no discoloration of the leaf tissues in the neighbourhood of the stroma.

Intramaterial mycelium copious, consisting of colourless hyphae 3.5-4 μ thick, filling the intercellular spaces and penetrating right through the leaf so that stromata are usually formed at corresponding points on the upper and lower surface, one being older than the other. Each stroma is attached to the leaf by a central foot, which is a continuation of the brown compact hypostroma formed in the epidermal and sub-epidermal cells. This foot is 80-160 μ thick, and is continued into the stroma, forming a dark, cellular hypothecium, around which the loculi are arranged. Apart from the central foot the stromata are unattached, lying free on the leaf surface. In old stromata the asci above the foot break away, leaving a cavity, so that the loculi have the appearance of being arranged in a circle around a sterile centre.

Covering membrane black, carbonaceous, radiating in structure at margin, rugose. Diameter of a single stroma is 700-1000 μ ; height, excluding foot, 200-270 μ .

Asci paraphysate, briefly pedicellate, eight-spored, 70-100 $\mu \times$ 30-45 μ , ovate, thick-walled round apex, with conglobate spores when immature; later becoming more elongated, clavate, with distichous spores. Paraphyses linear, about 3.5 μ thick. Spores two-celled, almost black, opaque, slightly constricted, ellipsoid, upper loculus slightly larger, 30-33 $\mu \times$ 13.5-15 μ .

Polyrhizon bewsii Doidge, nov. sp.

Stromata amphigena, orbicularia, atra, carbonacea, circ. 1 mm. diam., centro affixa, e 1-pluribus ascomatibus circinantibus concreta. Ascomata partialia, pede centrali 80-160 μ cr., epidermide innata, versus marginum radiato-contexta, 700-1000 μ diam., 200-270 μ alto, loculis rotundatis, immersis. Asci paraphysati, clavati, breviter pedicellati, octospori, 70-100 $\mu \times$ 30-45 μ , paraphysibus linearibus, 3.5 μ cr. Sporae didymae, brunneae, opaeae, leniter constrictae, elongatae, loculo supero paullo majore, 30-33 $\mu \times$ 13.5-15 μ .

Hab. in foliis *Elaeodendri aethiopici*, Natal, 1.9.17, leg. Bews et Doidge [10087] et [11592].

11. *Placoasterella rehmsii* (P. Henn.) Theiss. et Syd.

Ann. Myc. XIII (1915), p. 237.

Syn. *Asterella rehmsii* P. Henn., Engl. Bot. Jahrb. XVII, p. 114; Sacc. Syll. Fung. XI, p. 257.

On *Aloe arborescens*, Ripplemead, Dohne, Stutterheim Dist., 25.2.15, Bell Edmonds [8899].

On *Aloe mitriformis*, Montague Baths, December, 1915, Pole Evans [9417].

On *Aloe natalensis*, Botanic Gardens, Maritzburg, 8.4.11, Pole Evans [1440].

On *Aloe* sp., New Hanover, Natal, 9.9.13, V. d. Bijl [8892].

This fungus was originally described as occurring in Abyssinia on *Aloe abyssinica* and *Aloe maculata*.

Aerial mycelium not very copious, consisting of brown hyphae, 3.5-5 μ thick, very tortuous, branched, and anastomosing. Stromata scattered or confluent in small groups, either round, 150-200 μ diam., or more frequently elliptic, 200-280 $\mu \times$ 120-150 μ ; in the latter case straight or curved; when two or three are confluent the stroma often appears to be forked; dehiscing by an irregular, round, or elongated fissure.

The cuticle of the leaf is stained with a red pigment where it has been attacked by the fungus, and the discoloration spreads into the palisade cells. The discoloured parts of the leaf tissue are swollen, so that the stromata lie on round, reddish or brown blisters, which are up to 5 mm. diam., and which are often so numerous as to become confluent.

Hypostroma epidermal, filling certain of the epidermal cells with dark hyphal balls, especially under the centre of the superficial fruiting bodies; mycelial strands also penetrate between the palisade cells.

Fruiting body usually unilocular, 60–80 μ high, with a thin black outer wall. Asci oval to clavate, paraphysate, eight-spored, apedicellate, thick-walled round apex, staining brick red with iodine, 36–40 $\mu \times 22\frac{1}{2}$ –25 μ . Spores brown, two-celled, constricted ellipsoid, cells almost equal, upper loculus somewhat broader, 18–23 $\mu \times 8$ –10 μ .

12. *Hysterostoma orbiculata* Syd.

Ann. Myc. XIII (1915), p. 239.

Syn. *Dothidasteromella orbiculata* Syd., Ann. Myc. X (1912), p. 41.

On *Olea verrucosa*, Wellington, C.P., 18.11.10, Doidge [1031]; Port Elizabeth, 17.10.09, West (immature) [1870].

In renaming this fungus, Theissen and Syd. (*loc. cit.*) remark that the species has been described from insufficient material, and that the diagnosis could be much improved after studying well-developed specimens.

There is in the National Herbarium abundant material of the same collection as the type [1031], and much of this is in excellent condition. I am, however, only able to add a few details to the description cited above.

Stromata usually epiphyllous, less commonly hypophyllous, circular in outline, dull black, 4–6 mm. in diameter, carbonaceous; the surface is rough and traversed by deep fissures or clefts. Each stroma is surrounded by a radiating fringe of hyphae, which are septate, 4–6 μ thick, and run parallel to one another. These hyphae are, as a rule, not branched, and are often fused by their lateral walls into hyphal strands, but are not compacted into a stroma.

The central part of the stroma consists of numerous loculi, which are irregularly arranged; they are round to irregular in shape and very closely crowded, 250–300 μ in diameter. The lateral walls are almost perpendicular, the total height of the ascostroma being 240–270 μ . The outer covering is radial in structure, and it breaks down irregularly at maturity.

There appear to be no stomata on the upper surface of the leaf of *Olea verrucosa*, but there are at intervals folds or clefts in the cuticle similar to those beneath which the guard cells are formed on the lower surface. The hypostroma of the fungus is found in the epidermal cells, between the epidermis and the cuticle and in the thickness of the cuticle itself; here it is pseudo-cellular and dark brown. There is also an almost continuous layer of colourless, interwoven hyphae lying between the epidermis and the palisade cells and penetrating into the upper part of the latter. The dark-coloured hypostroma breaks through the leaf, often at the clefts mentioned above; the cuticle is split irregularly in several directions, and through the fissures thus formed the hypostromal tissue grows and produces the fruiting bodies, the hypothecium being in direct connection with the hypostroma at several points under each loculus.

The hypothecium is brown, similar in texture to the hypostroma in the epidermal cells and cuticle, but less dense; it is about 90–100 μ high in the centre of each loculus, where it forms an irregular cushion, on which the asci are borne, and becomes much thinner at the periphery, measuring about 45 μ . Asci elongated, club-shaped, paraphysate, eight-spored, thick walled round the apex, 75–140 $\mu \times 16$ –32 μ . Paraphyses numerous, filiform, 2–3 μ thick, becoming more or less conglutinate at the tips and forming an epithelial layer. The asci do not react to iodine, but stain a brick-red colour. Spores usually distichous, oblong, medially uniseptate, brown, thick walled, 30–34 $\mu \times 12$ –15 μ , upper loculus very slightly broader and more broadly rounded than the lower.

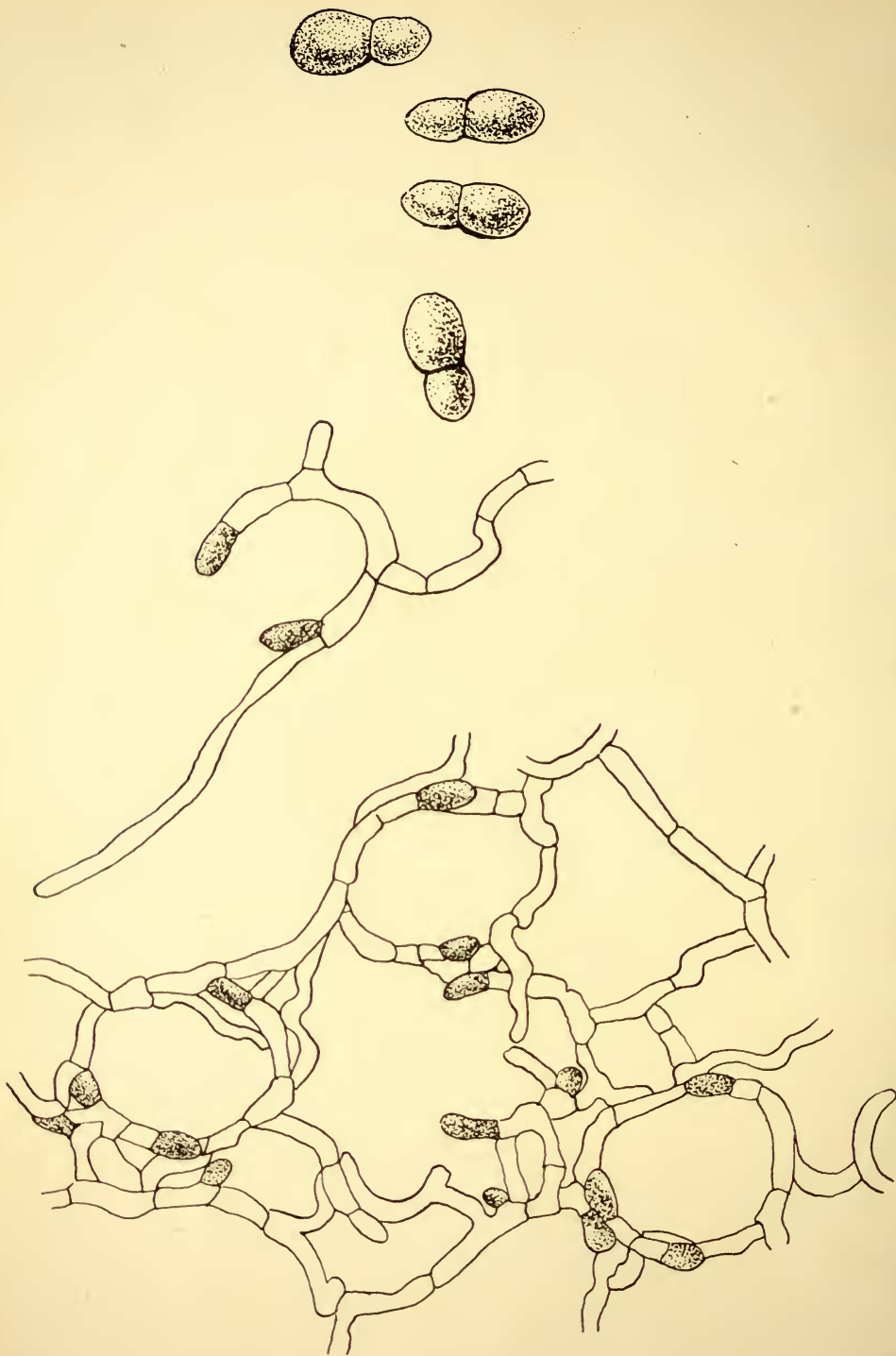


Fig. 2.—Mycelium and spores of *Isipinga areolata*.

13. *Isipinga* Doidge, nov. gen. *Polystomellacearum*.

Mycelium superficialum, ramosum, septatum, hyphopodiatum. Stromata superficialia ex hypostromate subcuticulari oriunda, pluries affixa. Loculi inordinate dispositi, rotundati vel elliptici (non lineares). Asci paraphysati, octospori. Sporae phaeodidymae.

This genus differs from *Hysterostoma* Theiss. in the presence of a well-developed aerial mycelium, and from *Asterodothis* in the absence of a central column or foot.

Isipinga areolata n. sp.

On leaves of *Euclea natalensis*, Isipingo Beach, Natal, 21.5.17, Doidge [10153]; 13.5.13, Doidge [6647]; near Durban, Natal, 25.5.97, Medley Wood [9520] (Wood No. 6447); 25.5.15, Doidge [8986]; 13.1.18, V. d. Bijl [11363].

Hypophyllous, usually near the reflexed leaf margin, less frequently scattered over the whole under-surface of the leaf, forming circular, dull-black areas, 5–15 mm. diam., often coalescing and forming irregular black blotches, especially along the leaf margins; stromata scattered and visible as small denser black points.

Aerial mycelium well developed, hyphae fuscous, 3·5–5 μ thick, branching freely and anastomosing to form regular, circular, or slightly oval areolae, 30–50 μ diam.; hyphopodia unicellular, darker than the hyphae, ovate or ellipsoid, straight or curved, 8–10 μ \times 5 μ . Stromata scattered, circular or oval, opaque black, 300–350 μ diam. or about 400 μ \times 240 μ , formed of radiating cells; arising from a subcuticular hypostroma which breaks through the cuticle to form the stromata in the cavities above the sunken stomata; stromata attached to host at several points by dark brown or black fungous pegs, which are up to 20 μ thick where they penetrate the cuticle; height of fruiting body is 80–100 μ , each stroma containing several round to irregular loculi; the dark covering membrane slopes gradually towards the leaf surface at the circumference of the stroma. Loculi dehisce at maturity by irregular fissures in the covering membrane.

Paraphyses fairly numerous, hyaline, linear, about 3 μ thick, slightly exceeding the asci. Asci eight-spored, ovate or broadly ellipsoid, thick walled round apex, 50–65 μ \times 33–40 μ , not reacting to iodine, but staining a sort of brick-red colour. Spores tristichous or conglobate, brown, two-celled, 27–32 μ \times 13–13·5 μ , constricted, upper locus larger.

Isipinga areolata Doidge, n. sp.

Mycelium hypophyllum, bene evolutum, ramosum, areolatum ex hyphis 3·5–5 μ crassis, anastomosantibus, hyphopodiis continuis, ovatis v. ellipsoideis, rectis v. curvatis, 8–10 μ \times 5 μ , compositum. Stromata sparsa, rotundata v. elliptica, atra, opaca, 300–350 μ diam.; v. elliptica, circ. 400 μ \times 240 μ , radiatim contexta, hypostromate subcuticulare oriunda, pluries affixa. Loculi inordinate dispositi, 80–100 μ alti. Asci octospori, ovati vel late ellipsoidei, 50–65 μ \times 33–40 μ , paraphysate; paraphysibus filiformis, hyalinis, 3 μ crassis. Sporae tristichae v. conglobatae, brunneae, 1-septatae, 27–32 μ \times 13–13·5 μ , constrictae loculo supero, paullo majore.

Hab. in foliis *Eucleae natalensis*, Isipingo, Natal, 21.5.17, leg. Doidge [10153].

14. *Isipinga contorta* Doidge.

Syn. *Dothidasteromella contorta* Doidge, Trans. Roy. Soc. of S.A. VIII, Part 3, 1920.

On leaves of *Trichocladus ellipticus*, Branders' High Forest, Victoria East, 14.8.15, V. d. Bijl [9462]; Pirie Forest, Kingwilliamstown, 8.7.19, Doidge [12298].

Forms small, dull-black, round, or irregular areas on upper surface of the leaves; the leaf tissues become discoloured in the neighbourhood of the fungus, right through to the lower epidermis. Aerial mycelium well developed, primary hyphae long, radiating, fuscous, 3–3·5 μ thick, with unicellular hyphopodia which are alternate or unilateral, subglobose, 6–7 μ diam.; between the radiating hyphae there is a densely interwoven mass of paler secondary hyphae which are very tortuous and crumpled, copiously branched, and anastomosing. Stromata scattered, opaque, black, 250–350 μ diam., with radiating structure, unilocular, attached at several points, and arising from a well-developed subcuticular hypostroma. Asci paraphysate, ellipsoid, or ovate, very briefly stipitate, straight

or curved, $55-80 \mu \times 20-25 \mu$; paraphyses numerous, linear, flexuose, or somewhat crumpled. Spores distichous or conglobate, 1-septate, slightly constricted, upper loculus broader, $16-20 \mu \times 8-10 \mu$.

15. *Polystomella caulicola* n. sp.

On stems of *Asparagus* sp., banks of Orange River, Aliwal North, 11.1.12, Pienaar [2093].

Stromata caulicolous, usually irregularly elliptic to linear in outline, elongated in a direction parallel with the stem axis, up to 8 mm. long, varying in width, $80-100 \mu$ high; often confluent and quite irregular in outline, attached at many points; surface rough, dull black. Covering membrane black, carbonaceous, formed of radiating hyphae about 3.5μ thick and consisting of numerous *Microthyrium*-like discs fused together at the edges; the membrane covers a number of flattened loculi which are $100-150 \mu$ diam. and $80-90 \mu$ high, and are separated by thin walled plectenchyma which are colourless or light brown. Hypothecium delicate, thin, colourless. Asci paraphysate, cylindrical-clavate, eight-spored, briefly pedicellate, $50-70 \mu \times 18-20 \mu$. Spores distichous, ellipsoid, hyaline, two-celled, very slightly constricted, cells sub-equal, $17-20 \mu \times 6-8.5 \mu$ (not quite mature).

Hypostroma well developed in the epidermis and penetrating into the sub-epidermal cells.

Polystomella caulicola Doidge, n. sp.

Stromata caulicola, elongata, usque 8 mm. longa, $80-100 \mu$ alta, pluries affixa, membrana una radiato e cellulis 3.5μ cr. contexta, carbonacea, ex pluribus quasi-Microthyrriis conflata tecta, ex hypothecio epidermali oriunda. Loculi rotundati, $100-150 \mu$ diam., $80-90 \mu$ alti, hypothecio tenue, hyaline. Asci paraphysati, cylindracei v. clavati, octospori, breviter pedicellati, $50-70 \mu \times 18-20 \mu$. Sporae distichae, ellipsoideae, hyalodidymae, leniter constrictae, loculus subaequalibus, $17-20 \mu \times 6-8.5 \mu$ (vix maturis).

Hab. in caulibus *Asparagi* sp., Aliwal North, 11.1.12, leg. Pienaar [2093].

16. *Palawaniella* Doidge, nov. gen. *Polystomellacearum*.

Stromata superficialia, orbicularia, pluries affixa, hypostromate in epidermide bene evoluto, radiato-contexta, carbonacea; mycelio libero nullo; loculis e medio evoluto, plus minusve annulatum dispositis, sed discretis, rotundatis; hypothecium tenue; asci paraphysati, octospori; sporae phaeodidymae.

This genus differs from *Palawania* chiefly in the centrifugal development of the stromata, and in the epidermal, rather than sub-epidermal hypostroma. It differs from *Pleiomella* in the brown, two-celled spores; the loculi are less definitely arranged in concentric rings.

Palawaniella eucleae n. sp.

On living leaves of *Euclea macrophylla*, Howiesons Poort, near Grahamstown, 12.7.19, Doidge [12375].

Stromata epiphyllous, scattered, round, 4-7 mm. diam., loculi developing centrifugally and arranged in more or less definite concentric circles; these show first of all as minute black points, which increase in size up to $160-500 \mu$ diam.; in the centre the loculi are very closely crowded; towards the circumference they are more scattered, but in either case they are round to oblong, discrete, $80-90 \mu$ high, adnate with their whole base to the substratum. The outer wall is radial in structure and splits at maturity by irregular stellate or, less frequently, longitudinal fissures.

Hypostroma well developed, formed of fuliginous hyphae which form compact balls in the epidermal cells; hyphae may often be traced running between the palisade cells and the epidermal cells, and so connecting adjacent loculi. There are no stomata on the upper surface of the leaf and the cuticle is not ruptured, the ascus-bearing stroma being connected with the hypostroma in the epidermal cells by numerous fine, colourless filaments, which penetrate the cuticle; these are about $1-1.5 \mu$ thick. Hypothecium thin, colourless.

Asci paraphysate, eight-spored, very briefly pedicellate, clavate to ovate, thick walled at apex, $43\text{--}57\ \mu \times 23\text{--}27\ \mu$; they do not react to iodine. Paraphyses very numerous, hyaline, filiform $2.5\text{--}3\ \mu$ thick, slightly exceeding the asci. Spores distichous or conglobate, ellipsoid, two-celled, fuscous, later brown, very slightly constricted, cells almost equal, $20\text{--}21\ \mu \times 8.5\text{--}10\ \mu$.

Palawaniella eucleae Doidge, nov. sp.

Stromata ascophora epiphylla, superficialia, sparsa, 4–7 mm. diam., radiato-contexta; hypostromati epidermali; loculi numerosi, e medio evoluti plus minusve concentrici dispositi, sed discreti, rotundati v. elliptici, $160\text{--}500\ \mu$ lati, $80\text{--}90\ \mu$ alti; hypothecio tenue. Asci paraphysati, octospori, brevissime pedicellati, clavati v. ovati, ad apicem incrassati, $43\text{--}57\ \mu \times 23\text{--}27\ \mu$; paraphysibus numerosis, hyalinis, filiformis, sporae distichae v. conglobatae, ellipticae, medio septatae, brunneae, leniter constrictae, loculis subaequalibus, $20\text{--}21\ \mu \times 8.5\text{--}10\ \mu$.

Hab. in foliis *Eucleae macrophyllae*, Howiesons Poort, 12.7.19, leg. Doidge [12375].

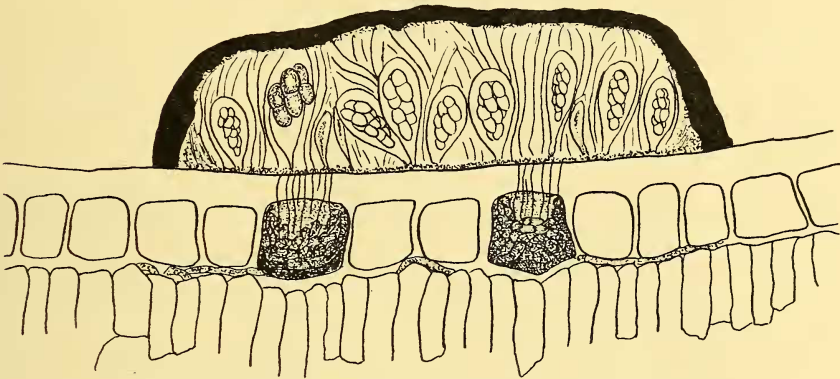


Fig. 3.—Section through loculus of *Palawaniella eucleae*.

17. *Pleiomella Halleriae* n. sp.

On *Halleria lucida*, Louis Trichardt, 8.4.19, Putterill [11847]; Van Stadens Pass, C.P., 13.11.17, Doidge [10872]; Howiesons Poort, Grahamstown, 17.11.17, Doidge [10959]; Buccleuch, Natal, 17.7.18, Doidge [11585]; Howiesons Poort, 12.7.19, Doidge [12384].

On *Halleria elliptica*, Kentani, 4.12.15, Pegler (Pegler 2348) [9163].

Stromata epiphyllous, superficial, scattered, round, up to 3 mm. diam., obscurely brown, $100\text{--}115\ \mu$ high, attached at many points, radiate in structure, with an opaque, rugose covering membrane $30\text{--}45\ \mu$ thick; hypothecium brown, $30\text{--}36\ \mu$ thick, loculi numerous, densely crowded in concentric circles, but discrete, round, $190\text{--}250\ \mu$ diam., or becoming oval by crowding and then $250\text{--}280\ \mu \times 160\ \mu$. Hypostroma epidermal, but occasionally, in centre of stroma, more deeply seated and invading the palisade cells. Asci ovate, $50\ \mu \times 26\text{--}33\ \mu$ or clavate, $66\text{--}70\ \mu \times 20\text{--}23\ \mu$, thickened at apex, eight-spored; paraphyses hyaline, linear, about $1.5\ \mu$ thick, soon disappearing. Spores distichous or tristichous, at first equally or sub-equally 1-septate, constricted, later muriform, usually transversely 5 (rarely) 7-septate, and with a longitudinal septum running the length of spore, rarely constricted at secondary septa; septa very delicate, plasma granular, hyaline (mature?) $22\text{--}24\ \mu \times 9\text{--}10\ \mu$. Asci stain brick-red with iodine.

Pleiomella Halleriae Doidge, nov. sp.

Stromata ascophora superficialia, sparsa, rotundata, usque 3 mm. diam., obscure brunnea, $100\text{--}115\ \mu$ alta, radiato-contexta, pluries affixa; hypostromate epidermali; strato tegente opaco, $30\text{--}45\ \mu$ crasso; loculi numerosi, dense concentrici dispositi, sed

discreti, 190–250 μ diam., vel elliptici, 250–280 $\mu \times 160 \mu$. Asci ovati, 50 $\mu \times 26$ –33 μ , vel clavati, 66–70 $\mu \times 22$ –23 μ , ad apicem incrassati, octospori, paraphysati; paraphysibus filiformis, mox mucosis praesentibus. Sporae distichae v. tristichae, oblongae, utrinque rotundatae, hyalinae (an semper?) medio v. paullo supra medium septatae, deinde transverse 5, rare 7 septatae, septis tenuissimis, cellulis pluribus v. omnibus septo longitudinali divisus, plasmate granuloso, 22–24 $\mu \times 9$ –10 μ .

Hab. in foliis *Halleriae lucidae*, Louis Trichardt, 8.4.19, leg. Putterill [11847].

18. *Diplochorella amphimelaena* (Mont.) Theiss. and Syd.

Ann. Myc., 1914, p. 277.

Syn. *Dothidea amphimelaena* Mont.

Ann. Sc., Nat. II, Ser. t. XX, p. 372. Syll. Crypt., p. 222.

Homostegia amphimelaena Sacc. Syll. Fing. II, p. 650.

Phyllachora osyridis Cke., Grevillea XIII, p. 64.

Dothidella osyridis Berl. et Vogl., Syll. Fung. IX, p. 1038.

Dothidella osyridis var. *tassiana* Sacc., Syll. Fung. XIV, p. 676.

Microcyclus osyridis Sacc., Ann. Myc. II, 1904, p. 165.

Microcyclus tassianus Syd., Ann. Myc. II, 1904, p. 165.

On *Osyris compressa*. Muizenberg, C.P., 1883, MacOwan (Rabh. Wint. Fung. Eur. 3562) [3902]; Port Elizabeth, 23.3.11, Doidge [1243]; St. James, Capetown, 10.12.11, Pole Evans [1982]; Kloof Neck, Capetown, 24.2.12, Doidge [2155]; Muizenberg, 12.4.12, Beardmore [2292]; Belmont Valley, Grahamstown, 15.11.17, Doidge [10954]; Kalk Bay, January, 1918, Potts [11302].

Compound stromata, circular, 2–3 mm. diam., forming flat, raised discs on both sides of the leaf, with almost vertical edges, silver grey on the surface, thickly beset with erumpent punctiform, dull black bodies about 50 μ diam., which eventually cover the whole surface. The densely crowded loculi develop under the epidermis—the apex of each separately rupturing the epidermis—and become somewhat raised above it. Gradually the part of the epidermis intermediate between the apices of the loculi disappears and the surface becomes altogether black. The leaf is normally 500–550 μ thick, but through the action of the fungus on both leaf surfaces it is often up to 1300 μ thick. The central leaf tissue is colourless and free from fungous stroma to a thickness of 700 μ ; above and below this the stromatic layer develops, which is again differentiated into two layers, the outer composed of the loculi and the inner of the basal hyphal stroma. The first consists of closely crowded, perithecium-like loculi, which are 120 μ high and 85–95 μ diam., and which are more or less connected laterally. From the base of the loculi the hyphae of the vegetative stroma run vertically inwards, forming a fairly sharply defined stromatic plate 120–170 μ thick. The loculi are typically composed of grey-brown, laterally compressed cells which are 14–15 μ long, 5 μ thick, and 8–9 μ broad, and are in close contact by their flat sides. These hyphae sometimes penetrate inwards in more or less compact strands, but only to a limited depth, and the intermediate leaf tissue is not destroyed. Towards the base of the loculi the greater part of the flat cells become polyhedral or regularly elliptic and somewhat smaller and form a sort of wall round the loculi consisting of a few concentric layers of cells; they also fill up the spaces between the loculi; the cells are dark brown and thick walled. There is apparently no stromatic connection between the stromata on the upper and lower leaf surfaces.

Asci aparaphysate, basal, short cylindrical, 35 $\mu \times 12 \mu$, apedicellate, eight-spored. Spores polystichous, hyaline, two-celled, 12–13 $\mu \times 4 \mu$, constricted at the septum; lower cell twice the length of the upper.

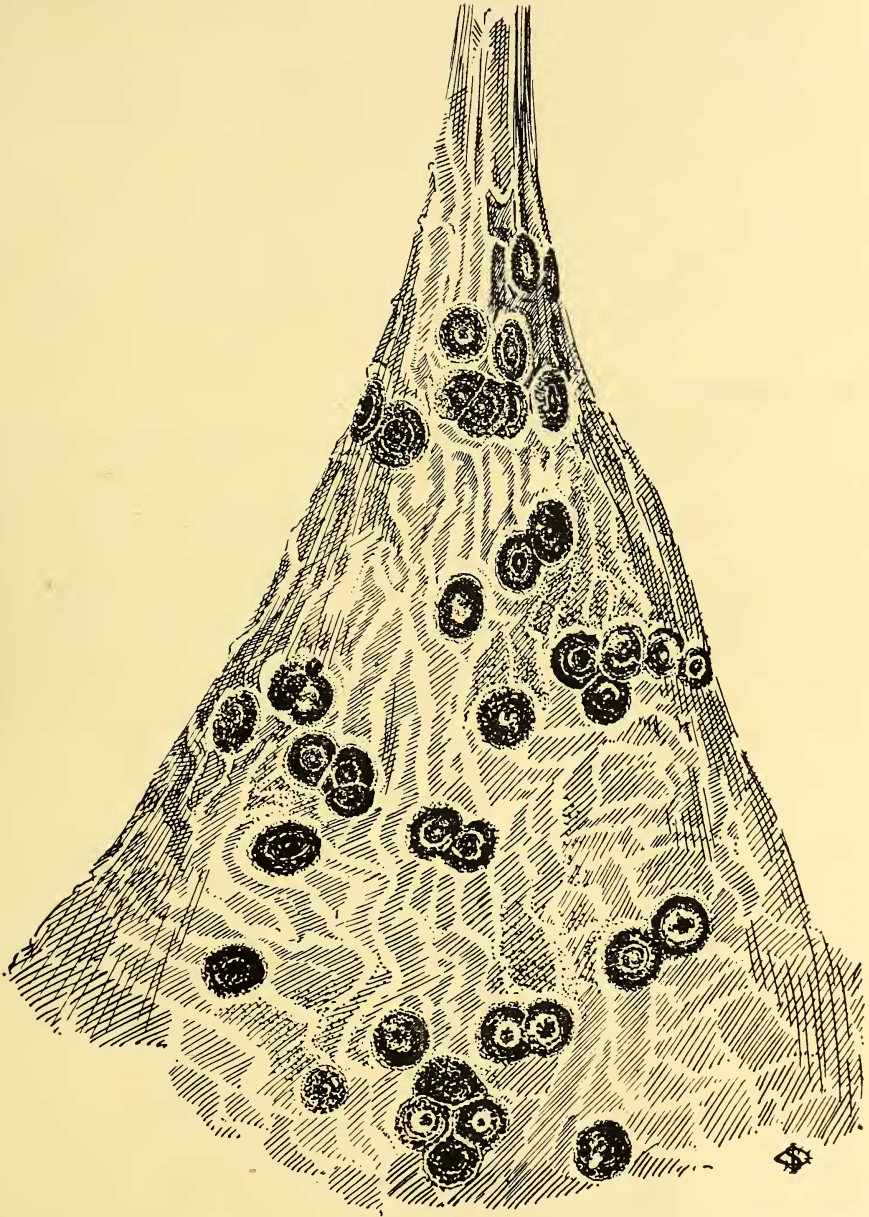


Fig. 4.—*Montagnella maxima*.

19. *Montagnella maxima* Mass.

Gardener's Chronicle, 1899, p. 291, c.i.e.; Syll. Fung. XVI, p. 630.

Ann. Myc. XVI, p. 630; Ann. Myc. XIII (1915), p. 638, Fig. 4.

On *Aloe ferox*, Port Elizabeth, 24.3.12, Doidge [2274]; Uitenhage, 15.5.12, Pienaar [2496]; Graaff-Reinet, 1.4.12, Burt-Davy [5156].

On *Aloe platylepis*, Port Elizabeth, 23.3.11, Doidge [1312].

This fungus forms large raised galls about 1 mm. high; on both sides of the leaf, they are circular or oval and up to 1 cm. diam. The stroma breaks through the epidermis, forming a number of little furrows which are arranged in numerous concentric circles. The vegetative stroma extends perpendicularly downwards into the gall tissue, filling the intercellular spaces with smooth, light brown hyphae $3\frac{1}{2}$ –4 μ thick; before they break through the epidermis these become collected together and form a thick compact web, on which are formed in groups the narrow, almost free loculi. These in section are 135 μ high and 100 μ diam., the stromatic base of each group being 160–240 μ thick. Asci basal, paraphysate, broadly clavate to oval, very briefly pedicellate, 58–68 $\mu \times$ 30–40 μ ; spores brown, tristiculous, oblong, 30 $\mu \times$ 6–8 μ , four-celled, constricted in the middle, rounded at both ends, straight.

20. *Elmerococcum peglerae* (Pole Evans) Doidge.

Syn. *Montagnella peglerae* Pole Evans, Ann. Bolus Herb. II, p. 5.

On leaves of *Myrsine melanophleos*, Kentani, 3.4.12, Pegler [2206]; May, 1913, Pegler [6620].

Stromata hypophyllous, black, punctiform, not more than 0.5 mm. diam., attached to the leaf by a central foot which breaks out through a stoma. The central foot gives rise to a thick basal cushion of sterile plectenchyma, on which are borne the small bolster-shaped ascostroma and one or two sub-spherical pycnidia, both being flattened laterally by contact. The stroma is often surrounded by a short sparse fringe of fuscous hyphae, which are septate and 3.3–5 μ thick. Ascostroma 300–430 $\mu \times$ 200–270 μ and about 80–90 μ high, unilocular; wall consisting of polyhedral plectenchyma. Asci paraphysate, oval to clavate, very briefly pedicellate, 60–70 $\mu \times$ 23–27 μ ; paraphyses not numerous, filiform, exceeding the asci. Spores distichous, hyaline, 3-septate, clavate to ellipsoid, not constricted, 27–30 $\mu \times$ 9–10 μ . Pycnidia 160–200 μ diam.; conidia very numerous, minute, bacilloid.

Elmerococcum peglerae Doidge, nov. sp.

Stromata erumpenti-superficialia, centro affixa, orbicularia v. elliptica, usque 5 mm. diam.; ascostroma unica et pycnidia unica vel dua in quaque stromati aggregata. Ascostromata nigra, perithecioida, elliptica 300–430 μ longa, 200–270 μ lata, 80–90 μ alta. Asci ovati vel clavati, paraphysati, breviter pedicellati, 60–70 $\mu \times$ 23–27 μ . Sporae distichae, hyaline, 3-septatae 27–30 $\mu \times$ 9–10 μ . Pycnidia rotundata 160–200 μ diam.; conidiis minutis bacillaribus.

Hab. in foliis *Myrsine melanophleos*, Kentani, 3.4.12, Pegler [2206]; May, 1913, Pegler [6620].

21. *Rosenscheldia horridula* n. sp.

On living leaves of *Olea capensis*, Ungeni Beach, Durban, 4.6.12, Pole Evans [3149]; East London, 19.7.19, Doidge [12411].

On *Olea woodiana*, East London, 24.11.17, Doidge [10903].

Stromata usually hypophyllous, less frequently epiphyllous, very numerous, but not large, up to 2 mm. diam. Often larger, irregular stromata are formed by confluence.

In the intercellular spaces under the epidermis the hyphae are colourless and closely packed, passing over into a darker coloured mass of round-polygonal cells 5–6.5 μ diam. This layer of dark, thick-walled cells is rather irregular and here and there penetrates deeper into the leaf tissues. From this stromatic base arise very numerous, closely crowded, cylindrical or club-shaped bodies 200–240 μ high, 96–160 μ thick at the base

160–200 μ thick at the apex. This column has the same prosenchymatous structure as the basal stroma. In the upper, broader part of each there is a single loculus sunk in the stroma; this has no separate wall, but is covered by the polygonal-celled hyphal weft of the stroma column. The cells of this covering layer are larger than those at the base, being 7–10 μ diam.

In this species of *Rosenscheldia* the sterile part of the column is very short, the loculus being sub-spherical 100–150 μ diam. Asci basal, clustered, eight-spored, paraphysate, narrow-clavate, thickened round apex, 55–70 $\mu \times 16$ –17 μ . Paraphyses numerous, filiform. Spores distichous, four-celled, fuscous, clavate, 20–22 μ long, 6–6.5 μ thick at the broad end.

Rosenscheldia horridula Doidge, nov. sp.

Stromata plerumque hypophylla, minuta, usque 2 mm. diam., v. confluenda majores, columnata, columnis cylindraceutis v. clavatis, dense aggregatis, 200–240 μ altis, base 96–160 μ , apice 160–200 μ crassis. Loculi apicales singuli in quaque columna, stromate apicale tegentes, 100–150 μ diam. Asci paraphysati, octospori, clavati, ad apicem incrassati, 55–70 $\mu \times 16$ –17 μ ; paraphysibus numerosis, filiformis. Sporae distichae, 3-septatae, fuscae, clavatae, 20–22 $\mu \times 6$ –6.5 μ .

Hab. in foliis *Oleae capensis*, Durban, 4.6.12, leg. Pole Evans [5149].

22. *Auerswaldia examinans* (M. et B.) Sacc.

Syll. Fung. II, p. 626.

Syn. *Dothidea examinans* M. et B.—Bl. javan, 520.

Sphaeria examinans Mont. et Berk.—Hooker's Lond. Journ. Bot. I, p. 156.

On bark of old seedling citrus tree, Krantzklouf, Natal, 7.4.14, Bell [7733].

Auerswaldia examinans was originally described as occurring on the bark of a tree in Java. The South African specimen agrees with the description given in the *Annales Mycologici* (XIII, 1915, p. 298), except that the loculi are somewhat larger.

The bark is thickly beset with the erumpent, dull black, tuberculate stromata in all stages of growth, from the youngest which are punctiform to the mature columns with a length of 800 μ . The surface is rough, granular, covered with the somewhat mammillate protruding apices of the loculi.

The stroma develops under the bark, spreading considerably, and breaking through at several points develops the stromatal columns in which the loculi are formed. The hyphae forming the column are perpendicular to the hypostroma, towards the apex becoming indistinctly cellular. In the young fruiting bodies only the hypostroma and the outer layer of the column is dark coloured. The loculi lie in the upper part of the column, and are 140–160 $\mu \times 120$ –150 μ , circular to ellipsoid, and sunken in the stroma, the latter being raised in a series of minute peaks over the apices of the loculi. The loculi are not ostiolate, dehiscing by the rupture of the outer stromatic wall. Asci basal, clavate-cylindrical, 65 $\mu \times 18$ μ , with a short, broad foot 12 μ long. Spores distichous, brown, one-celled, oblong-ellipsoid, rounded at both ends, 20–24 $\mu \times 10$ –11 μ .

23. *Dothidina disciformis* (Wint.) Theiss. and Syd.

Ann. Myc. XIII (1915), p. 304.

Syn. *Auerswaldia disciformis* Wint.—Hedwigia XXIII, 1884, p. 170; Syll. Fung. IX, p. 1033.

On leaves of *Myrica* sp., near Capetown, 1883, MacOwan (Rabh. Wint. Fung. Eur. 3063) [3403]; Krantzklouf, Natal, 14.8.14, V. d. Bijl [8396]; Uganda, March, 1916, Dummer [11986].

Stromata on both sides of the leaf, round or irregular, often angular, 2–5 mm. broad, forming black, comparatively smooth cushions, raised 200–300 μ above the leaf surface. The epidermis, which is filled with stroma, at first covers the true stroma, but later it becomes torn and pushed back, and is also torn away from the stroma, with which it was

at first united. It then surrounds the free erumpent fruiting bodies, being torn into broad black flaps. The inner part of the stroma is comparatively light coloured, but consists of thick-walled hyphae, 6–10 μ broad. Loculi crowded, spherical or spherical-ovate, 120–160 μ diam., not reaching the base of the stroma, without a true wall. Paraphyses filiform. Asci cylindrical, rounded above, narrower at the base, 100–135 μ \times 14–16 μ . Spores obliquely monostichous or almost distichous up to eight in an ascus, elliptic, one-celled, olive brown, 17–19 μ \times 8–9 μ .

24. *Parastigmatæa* Doidge, nov. gen. *Stigmatæacearum*.

Omnia ut in *Stigmatæa*, sed sporæ hyalinae, continuae.

Parastigmatæa nervisita n. sp.

On leaves of *Stephania hernandifolia*, Maritzburg, Natal, 26.6.11, Doidge [1656]; 6.4.14, Doidge [8352].

Ascomata epiphyllous, minute, dull black, punctiform, circular, 240–300 μ diam., discrete, but in small groups on main and lateral veins, 80–90 μ high, smooth, remaining covered by the cuticle. Basal membrane brown, about 10 μ thick, composed of concentric layers of compressed hyphae. Covering membrane radial in structure, composed of sinuous hyphae, 3–3.5 μ thick, arched in centre, flat at edges, 6–7 μ thick, dehiscing by a circular central pore; central cavity containing asci about 150 μ diam. Asci paraphysate, ovate or broadly ellipsoid, thick walled, eight-spored, 50–53 μ \times 26.5–30 μ . Spores distichous or conglobate, hyaline, sub-clavate or somewhat piriform, rounded at both ends, continuous, 20–24 μ \times 8–10 μ .

Parastigmatæa nervisita Doidge, nov. sp.

Ascomata epiphylla, minuta, atra, rotundata, in nervibus insidentia, 240–300 μ diam., 80–90 μ alta, laeves, cuticulare tecta, radiatim e hyphis undulatis 3–3.5 μ crassis, contexta. Asci paraphysati, ovati vel late ellipsoidei, 8-sporei, 50–53 μ \times 26.5–30 μ . Sporae distichae v. conglobatae, hyalinae, continuae, subclavatae v. subpiriformae, utrinque rotundatae, 20–24 μ \times 8–10 μ .

Hab. in foliis *Stephaniae hernandifoliae*, Maritzburg, 26.6.11, et 6.4.14, leg. Doidge [1656] et [8352].

25. *Perischizon oleifolium* (Kalch and Cke.) Syd.

Ann. Myc. XII (1914), p. 265, XII (1915), p. 269.

Syn. *Dothidea oleifolia* Kalch et Cke., Grevillea IX (1880), p. 31.

On *Olea capensis*, 9.1.14, Kirstenbosch, C.P., Pearson [7374].

On *Olea laurifolia*, 21.6.16, Malalane, Eastern Transvaal, Hall [9749].

Stromata amphigenous, scattered or crowded, circular, raised, $\frac{1}{2}$ – $\frac{3}{4}$ mm. diam., with a central foot 100–200 μ diam. penetrating into leaf tissues. Surface rough, lumpy, with a single (occasionally double) peripheral wall, beset laterally as well as at the base with bristly, brown, truncate septate hyphae, 100 μ long, 5–8 μ thick, which later disappear. Stroma hard in texture, dark, prosenchymatous, composed of parallel hyphae. The loculi are sunken in the periphery and coalesce to form a circular hymenium, the stromatal cover becoming mucilaginous at maturity and disappearing. Asci clavate, thick-walled round the apex, 90–115 μ \times 28–38 μ , eight-spored, embedded in mucilage. Paraphyses simple, thick, clavate at the apex, and 3–4 μ broad, light brown. Spores distichous, ellipsoid-oblong, brown, 26–34 μ \times 11–14 μ , two-celled, constricted, abruptly rounded at both ends; upper cell somewhat broader than the lower.

26. *Phragmodothella nervisequens* n. sp.

On leaves of *Burchellia capensis*, Van Stadens Pass, 7.7.18, Pole Evans [11446].

Stromata amphigenous, but mostly hypophyllous, forming elongated, raised, rusty-brown streaks, up to 1 cm. long and 1 mm. broad, on mid-rib and main lateral veins; smaller, punctiform, elongated, or branched on smaller veins. Stromata developed under

the epidermis, causing a gall-like hypertrophy of the leaf tissues, later becoming erumpent; 120–160 μ high, the inner part of the stroma being composed of compact brown cells 3–5 μ diam., prosenchymatous between the loculi, and with a darker, roughened crust. Loculi numerous, immersed, sub-spherical, 80–100 μ diam. Asci aparaphysate, eight-spored, clavate or ellipsoid, thick-walled round apex, with a short foot, 45–60 $\mu \times$ 20–23.5 μ . Spores hyaline, distichous, 3-septate, oblong or somewhat clavate, slightly constricted at the centre, 18–20 $\mu \times$ 5–6.5 μ .

Phragmodothella nervisiquens Doidge, nov. sp.

Stromata amphigena, plerumque nervisequentes hypophylla, nervis majoribus usque 1 cm. longa et 1 mm. lata; nervis secundariis minores punctiforma, elongata v. ramosa; erumpentia dothideodea, 120–160 μ alta. Loculi numerosi, immersi, suborbiculares, 80–100 μ diam. Asci aparaphysati, octospori, clavati v. ellipsoidei, apice incrassati, breviter pedicellati, 45–60 $\mu \times$ 20–23.5 μ . Sporae hyalinae, distichae, triseptatae, oblongae v. subclavatae, medio leniter constrictae, 18–20 $\mu \times$ 5–6.5 μ .

Hab. in foliis *Burchelliae capensis*, Van Stadens Pass, 7.7.18, leg. Pole Evans [11446].

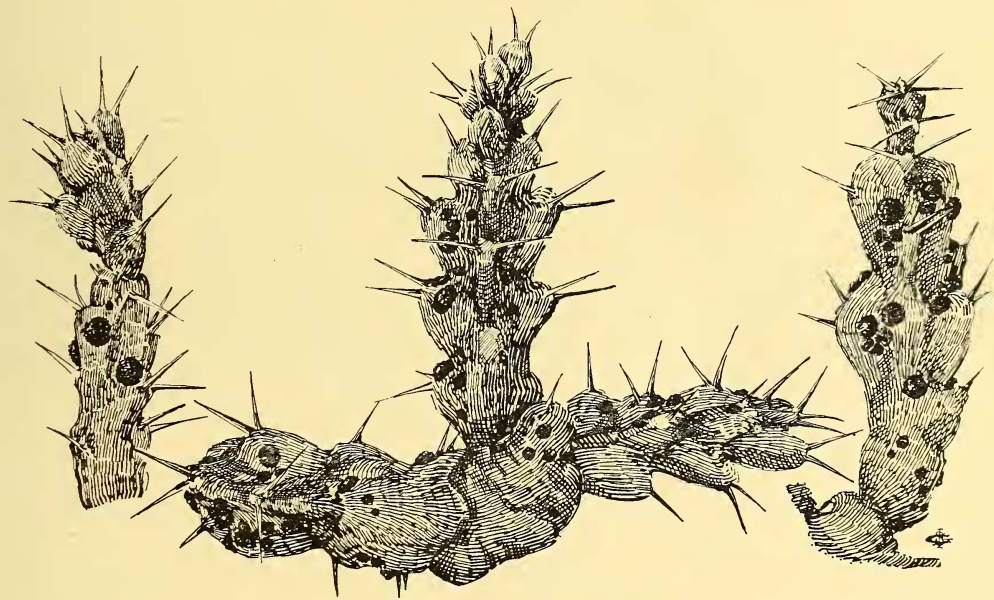


Fig. 5.—*Phragmodothis asperata*.

27. *Phragmodothis asperata* Syd.

Ann. Myc. XIII (1915), p. 345.

On the stem of *Euphorbia schintzii*, Wagenpadsnek, Pretoria Dist., 26.12.11, Pienaar [2159]; 31.12.13 [7353].

Stromata only growing in the outer layers of cells and becoming apparently quite superficial through the rupture of the periderm, almost spherical, 1½–3 mm. diam., 1½–2 mm. high, black, surface much wrinkled and cracked. Interior of stroma brown, the base and periphery being dark, opaque, formed of perpendicular, ascending hexagonal cells 15–19 μ diam. Loculi elliptical, 250 $\mu \times$ 200 μ , sunken under the periphery, often apparently free through the crumbling away of the stroma surface. Asci clavate, thick-walled, 140–200 $\mu \times$ 16–32 μ , 6–8 spored. Spores distichous or obliquely monostichous, oblong, four-celled, narrowed towards each end, but not pointed; straight, or one side straight and the other convex, verrucose at maturity. Paraphyses wanting.

28. *Trabutia evansii* Theiss. et Syd.

Ann. Myc. XIII (1915), p. 352.

On *Ficus* sp., Lourenço Marques, Portuguese East Africa, May, 1909, Howard [668].

Stromata only epiphyllous, on inconspicuous yellowish or brownish, discoloured spots, small, circular, 1 mm. diam., usually more or less regularly arranged in groups $\frac{1}{2}$ –1 cm. diam., but seldom becoming confluent. Not infrequently these groups are so numerous that they run together, and the whole leaf surface is more or less evenly and thickly beset with the small stromata. Stromata convex, almost hemispherical, unilocular, between the cuticle and the epidermis, composed of grey brown, vertical, parallel hyphae 4–5 μ diam. Clypeus opaque, 50–80 μ thick, loculus 300–450 μ diam., 150–240 μ high, with a wall 15–18 μ thick composed of delicate brown hyphae and concentric in structure. Asci cylindrical with monostichous spores, or clavate with distichous or somewhat conglobate spores (in the latter case the spores are often oblique or transverse), 70–90 μ \times 10–16 μ , eight-spored. Paraphyses numerous. Spores ellipsoid, abruptly rounded at both ends, continuous, hyaline, 11–14 μ \times 8–9 $\frac{1}{2}$ μ .

29. *Trabutia ficuum* (Niessl.) Theiss. et Syd.

Ann. Myc. XIII (1915), p. 352.

Syn. *Phyllachora ficuum* Niessl. Hedwigia XX. 1881, p. 99. Syll. Fung. II, p. 598.

On *Ficus* sp. Portuguese East Africa, 24.5.1908, Howard [520].

On *Ficus howardiana*, Lourenço Marques, P.E.A., 30.8.1909, Howard [719].

Stromata epiphyllous, shiny black, small, $\frac{1}{2}$ –1 mm. diam., raised, irregular, between the cuticle and the epidermis, becoming flat at the edge. In the centre there are a few loculi, 120–140 μ high, with opaque covering stromatal layer about 30 μ thick, the inner part of the stroma is lighter brown. Loculi flattened-spherical or lenticular, from 220 μ diam. and 100 μ high, to 320 μ diam. and 115 μ high. Asci paraphysate, cylindrical-clavate, 55–65 μ \times 14–18 μ , eight-spored. Spores hyaline, continuous, monodistichous, oval to ellipsoid, rounded at both ends, 11–13 μ \times 6 $\frac{1}{2}$ μ .

30. *Trabutia nervisequens* (Lingelsh) Theiss. et Syd.

Ann. Myc. XIII (1915), p. 353.

Syn. *Phyllachora schweinfurthii* P. Henn., var. *nervisequens* Lingelsh, Engl. Bot. Jahrb. XXXIX, 1907, p. 604.

On *Ficus* sp., Umgeni, near Durban, 21.3.10, Doidge [854]; Malvern, Natal, 28.12.11, Doidge [1994]; Winkle Spruit, Natal, 29.1.12, Pole Evans [2019]; Port Shepstone, Natal, 15.10.12, Pole Evans [5608]; Amanzimtoti, 14.6.14, Franks [7813].

This fungus was originally described on *Ficus hochstetteri*, var. *glabrior* in Abyssinia. It appears to occur quite commonly on the Natal coast.

Stromata epiphyllous, developed on inconspicuous yellowish coloured spots, chiefly along the mid-rib and lateral veins, being elongated in the direction of the vein and more or less confluent. Small stromata only 1 mm. long, larger ones up to 2 cm. long, very slightly shiny, between the cuticle and the epidermis, with one or many loculi, flat, somewhat wavy. The inner part of the stroma is prosenchymatous, composed of brown, parallel hyphae, perpendicular to the leaf surface, and 7–9 μ thick. Loculi lenticular, 400–600 μ diam., 250–300 μ thick. Locular wall comparatively stout, 12–18 μ thick, light brown, composed of numerous concentric layers of very delicate hyphae. Clypeus 40–60 μ thick, stout, opaque. Asci cylindrical, stipitate, paraphysate, 75–110 μ \times 11–14 μ . Spores usually monostichous, broadly ellipsoid, continuous, hyaline, 12–16 μ \times 8–10 μ .

On the surface of young stromata a conidial layer is often developed, which produces hyaline, filiform, crumpled conidia.

Var. *robusta* Doidge.

On *Ficus* sp., Port Elizabeth, 20.6.19, Gunn [12248].

Differs from the type in the thickness of the stroma and in the form and size of the loculi. Stroma 400–450 μ high, loculi sub-spherical, 330–370 μ diam., 300–400 μ high.

31. **Catacauma dalbergiicola** (P. Henn.) Th. et Syd.

Ann. Myc., XIII (1915), p. 388.

Syn. *Phyllachora dalbergiicola* P. Henn., Hedwigia XXXVI, 1897, p. 224; Syll. Fung. XIV, p. 664.

On leaves of *Dalbergia armata*, Barberton Dist., August, 1906, Pole Evans [588]; Stella Bush, Durban, 11.7.11, Doidge [1662]; Verulam, Natal, 3.7.13, Pole Evans [6808].

The type specimen is on leaves of *Dalbergia variabilis* and was collected in Brazil. The South African specimens agree exactly with the description of the original, except in the size of the loculi, which are somewhat smaller.

Epiphyllous, taking different forms on different leaves, sometimes very minute, sometimes producing round-angular stromata up to $1\frac{1}{2}$ –2 mm. diam., convex, somewhat shiny, between the epidermis and the palisade cells. Clypeus epidermal, opaque, about 35 μ thick, the inner part of the stroma being formed of vertical, parallel, light rusty-brown prosenchyma. Loculi sunken in the stroma, one or more according to the size of the stroma, 240–300 μ diam. and 180–200 μ high (in the original description 360–440 μ diam.), with a thin wall. Asci clavate, paraphysate, 60–70 μ \times 16–20 μ . Spores distichous, oblong-ellipsoid, hyaline, continuous, 12–14 μ \times 6–7 μ .

32. **Catacauma Pterocarpi** Syd.

Ann. Myc. XIII (1915), p. 387.

Syn. *Phyllachora Pterocarpi* Syd., Ann. Myc., 1912, p. 40.

On *Pterocarpus angolensis*, Letaba Drift, Zoutpansberg Dist., 6.8.11, Doidge [1807]; Barberton, 22.8.12, V. d. Bijl [5132].

Stromata epiphyllous, scattered, small, irregularly circular, 1–2 mm. diam., shiny black, on pale leaf spots, slightly convex, with somewhat undulating surface. Clypeus epidermal, opaque; loculi with their bases on the palisade tissue, 1–6 in each stroma, flattened-spherical, closely appressed to the leaf tissue at the base, with thin brown walls, 350–450 μ diam., 240–300 μ high. The upper parts of the loculi are connected by thick stromatic tissue. Asci paraphysate, clavate-cylindrical, 60–80 μ \times 16–24 μ . Spores monostichous or distichous, hyaline, one-celled, elliptic, rounded at both ends, 14–18 μ \times 8–9 μ .

The spores of both specimens appear to be somewhat immature. Theissen and Sydow (*loc. cit.*) state that it is doubtful whether there is a working difference between this fungus and *Phaeostroma pterocarpi* Syd. with two-celled spores.

33. **Catacauma Peglerae** n. sp.

On leaves of *Eugenia capensis*, Kentani, 6.7.15, Pegler (Pegler No. 2340) [9099]; Umbogintwini, Natal, 9.5.13, Doidge [6636]; Scottsburgh, Natal, 5.7.13, Pole Evans [6841]; Warner Beach, Natal, 1.4.18, Bottomley [11667].

Stromata epiphyllous, 1–2 mm. diam., circular, often forming larger, irregular stromata by confluence. Central stroma often surrounded by a ring of secondary stromata at a distance of 2–5 mm. (radius), which may be small and discrete, or fuse to form a continuous ring. Stromata black, shining, somewhat conical or mammillate in section. Epidermal clypeus about 40 μ thick, black, opaque, the stroma lying in the cavity between the arched epidermal clypeus and the depressed and hollowed palisade tissue. Locular wall thin and very closely appressed to the palisade cells. Loculi flattened-hemispherical

or pear-shaped, 400–600 μ diam. and 350–500 μ high. The loculi are often connected by opaque black stromatic tissue about 150 μ thick. Asci paraphysate, eight-spored, clavate-cylindrical, 120–140 $\mu \times$ 17–20 μ , with a short foot, 10–13 μ long. Spores mono-distichous, one-celled, hyaline, oval to ellipsoid, 20–23 $\mu \times$ 12–13 μ .

Catacauma peglerae Doidge, nov. sp.

Stromata epiphylla, 1–2 mm. diam. v. confluento majores, nonnunquam concentricae disposita, atra, nitidula, subconica, subepidermales. Loculi 400–600 μ diam., 350–500 μ alti, clypeo opaco, aterrimo, 40 μ crasso, parietibus tenuibus. Asci paraphysati, octospori, cylindraco-clavati, 120–140 $\mu \times$ 17–20 μ , breviter pedicellati. Sporae monostichae v. distichae, continuae, hyaline, ovatae v. ellipticae, 20–23 $\mu \times$ 12–13 μ .

Hab. in foliis *Eugeniae capensis*, Kentani, 6.7.15, leg. Pegler [9099].

34. *Catacauma grammicum* (P. Henn.), Theiss. et Syd.

Ann. Myc. XIII (1915), p. 382.

Syn. *Phyllachora grammica* P. Henn., in Flore du Bas et Moyen Congo in Ann.

Mus. du Congo, Vol. II, fasc. II, 1907, p. 98.

On leaves of *Ficus capensis*, Lemana, Zoutpansberg Dist., 14.8.11, Doidge [1829]; Kentani, C.P., 1.3.15, Pegler (Pegler No. 1993) [8884].

Stromata scattered, amphigenous, usually only on one side of the leaf, but occasionally an epiphyllous is found opposite to a hypophyllous stroma, following the nerves, forming dull black, linear streaks up to 7 mm. long and 0.8 mm. broad on a yellow brown leaf spot; from these short lateral streaks radiate or form thin connecting branches with neighbouring stromata. Stroma sub-epidermal, the base being sharply defined against the sub-epidermal cell-layer; the sub-epidermal layer and the rest of the mesophyll remaining unchanged even when two stromata are formed opposite to each other, on each of the leaf surfaces; only the region adjoining the base of the stroma is coloured red. The stroma consists of vertical, parallel prosenchyma, in the epidermal clypeus the cells are short and opaque black. Loculi broadly ellipsoid, raising the epidermis in which the clypeus has developed; at the base only resting on a thin line of stroma which is against the sub-epidermal cells, 300–350 μ diam., 140–170 μ high. Asci cylindrical, paraphysate, eight-spored, 45–58 $\mu \times$ 7–10 μ . Spores monostichous, one-celled, hyaline, ellipsoid, rounded at both ends, 8–10 $\mu \times$ 4–5½ μ .

35. *Phaeochorella parinari* (P. Henn.) Th. et Syd.

Ann. Myc. XIII (1915), p. 405.

Syn. *Cocconia parinari* P. Henn., Engl. Bot. Jahrb. XXX, 1901, p. 257; Syll. Fung. XVIII, p. 159.

On leaves of *Parinarium capense*, Pretoria Dist., October, 1908, Doidge [613]; 10.4.11, Erasmus [1272]; 29.4.11, Doidge [1507]; 8.4.12, Doidge [2203]; Seven Oaks, Natal [10981].

On *Parinarium mobola*, Rhodesia, Howard [730]; Zoutpansberg Dist., 6.8.11, Doidge [1809]; Barberton, 16.8.11, V. d. Bijl [1922]; Zoutpansberg Dist., 19.10.14 [9173].

Stromata epiphyllous, more or less covering the leaf surface, round to irregular, 1½ to 4 mm. in diam., convex, somewhat shiny, black, with a rough surface, 400–450 μ high, with a flat base resting on the sub-epidermal layer of cells, which is not stromatized, covered with an epidermal clypeus, light brown, vertically prosenchymatous in structure. Loculi numerous, pear-shaped, 300–400 μ diam., with an indistinctly periphysate neck. Asci cylindrical, 85–100 $\mu \times$ 11–15 μ , with delicate, filiform, hyaline paraphyses. Spores up to eight in an ascus, mostly monostichous, elliptic to oblong, rounded at both ends, red-brown, one-celled, with a slender medial hyaline band, 12–17 $\mu \times$ 8–9 μ .

36. *Phragmocaula viventis* (Cke.) Theiss. et Syd.

Ann. Myc. XIII (1915), p. 41.

Syn. *Dothidea viventis* Cke., *Grevillea* V, p. 16.

Phyllachora viventis (Cke.) Sacc., Syll. Fung. II, p. 601.

Dothidea viventis var. *albizziae* Cke., *ibid.*

Phyllachora albizziae Cke., *Grevillea* XIII, p. 65.

Homostegia albizziae (Cke.) Berl et Vogl., Syll. Fung. IX, p. 1049.

On leaves of *Albizzia fastigiata*, Inanda, Natal, May, 1881, Medley Wood (Wood No. 533) [9492] and [16445]; Winklespruit, Natal, 13.4.11 and 2.7.11, Pole Evans [1401] and [1583]; Stella Bush, Durban, 11.7.11, Doigde [1615]; Verulam, Natal, 3.7.13, Pole Evans [6829].

Stromata usually hypophyllous, small, irregular elliptic or oval in outline, somewhat raised, dull black, 0.5 to 0.7 mm. in length, the long axis often lying along a vein or in small groups of 2-4. Stroma arising between the peridermal and the sub-epidermal cells, with its base at the level of the epidermis. Loculi, several, under a common, arched, epidermal clypeus, spherical to lenticular, 190-200 μ diam. at maturity. Asci paraphysate, cylindrical, 80 μ \times 10-12 μ , with a foot 15-18 μ long. Spores distichous, colourless, four-celled, constricted at the middle, 20-24 μ \times 5-6 μ . The asci do not stain blue with iodine.

37. *Scolecodothis capensis* n. sp.

On leaves of *Olea* (?) *foveolata*, Howiesons Poort, Grahamstown, 17.1.17, Doigde [10963]; 12.7.19, Doigde [12379]; Van Stadens Pass, 13.11.17, Doigde [10869].

Stromata amphigenous; the epiphyllous stromata develop first, they are scattered, round to irregular, 1-1½ mm. diam., raised and convex above leaf surface, occasionally larger and irregular in shape by confluence, black and shining. Hypophyllous stromata smaller and flatter, and usually more or less undeveloped and sterile. The leaf tissue is not discoloured. Stroma between the epidermis and the palisade tissue. Clypeus epidermal, thick, opaque, 90-100 μ thick. The inner part of the stroma consisting of lighter brown, prosenchymatous plectenchyma. Loculi 4-5 in each stroma, immersed, lenticular or somewhat irregular by compression, 550-650 μ diam., 200-250 μ high. Asci paraphysate, eight-spored, narrow, ellipsoid, tapering to both ends, pedicellate, 100-120 μ \times 13-14 μ . Spores parallel, hyaline, one-celled, narrow, fusiform, pointed at both ends, 60-70 μ \times 5-6 μ in centre.

Scolecodothis capensis Doigde, nov. sp.

Stromata amphigena, sparsa, rotundata v. irregulares, 1-1½ mm. diam., convexa, atra, nitidula. Loculi 4-5 in quoque stromate, 550-560 μ diam., 200-250 μ alti; clypeo opaco, aterrimo, 90-100 μ crasso. Asci paraphysati, octosporo, anguste ellipsoidei, utrinque attenuati, pedicellati, 100-120 μ \times 13-14 μ . Sporae parallelae, hyalinae, continuatae, fusioideae, 60-70 μ \times 5-6 μ .

Hab. in foliis *Oleae* (?) *foveolatae*, Grahamstown, 17.1.17, leg. Doigde [10963].

38. *Phyllachora caffra* Syd.

Ann. Myc. XV (1917), p. 548.

Syn. *Phyalospora caffra* Syd., Ann. Myc. X (1912), p. 39.

On leaves of *Cordia caffra*, Amanzimtoti, Natal, 10.7.11, Doigde [1631].

Stromata epiphyllous, minute, gregarious on irregular rusty-brown spots, 250-300 μ in diam., unilocular; on the upper leaf surface round, punctiform, convex, shining; on the lower surface the epidermis becomes somewhat convex, and later the stroma becomes visible as a minute, dull-black point. Loculi occupying the whole thickness of the leaf, spherical, 250-300 μ diam., with a short epidermal clypeus at the apex, the lateral and basal wall consisting of a web of hyaline or yellowish threads; where the basal wall is

near the lower epidermis, a short clypeus is formed. The leaf, which is normally 200–220 μ thick, becomes arched over the loculus to a thickness of 360 μ . Asci cylindrical, paraphysate, 75–90 $\mu \times$ 9–12 μ . Spores monostichous, ellipsoid, hyaline, broadly rounded, one-celled, 11–13 $\mu \times$ 6–8 μ .

39. *Phyllachora dombeyae* Syd.

Ann. Myc. XV (1917), p. 532.

Syn. *Physalospora dombeyae* Syd., Ann. Myc. X (1912), p. 441.

On *Dombeya rotundifolia*, Equeefa, Natal, 24.4.11, Fuller [1539].

On *Dombeya schimperiana*, Woodbush, Zoutpansberg Dist., 4.8.11, Doidge [1762].

Stromata epiphyllous, gregarious on yellow leaf spots, $\frac{1}{3}$ – $\frac{1}{2}$ mm. diam., convex, somewhat shiny, not visible on the lower leaf surface, or only visible as minute dull black spots; with one or few loculi. Loculi spherical, 160–190 μ diam., covered at the apex with a dark epidermal clypeus, almost without lateral walls, not touching the lower epidermis, or forming a very short clypeus in the lower epidermal cells. Asci clavate, paraphysate 60–75 $\mu \times$ 15–20 μ . Spores distichous or tristichous, one-celled, hyaline, rounded at both ends, asymmetrical, straight or slightly curved, 25–35 $\mu \times$ 3–4 $\frac{1}{2}$ μ . Conidia filiform, curved 18–26 $\mu \times$ 1–1 $\frac{1}{2}$ μ .

40. *Phyllachora melianthi* (Thuem.) Sacc.

Syll. Fung. IX, p. 1013; Ann. Myc. XIII (1915), p. 528.

Syn. *Rhytisma melianthi* Thuem., Flora, 1876, p. 569.

Cryptomyces melianthi (Thuem.), Sacc., Syll. Fung. VIII, p. 707.

On *Melianthus major*, near Capetown, January, 1884, MacOwan (Rabh. Wint. Fung. Eur. 3557) [3897].

On *Bersama lucens*, Kentani, 3.7.15, Pegler [9017].

Stromata on both sides of the leaves, numerous, scattered, small, unilocular, hemispherically or conically convex, flat at the periphery, $\frac{1}{2}$ mm. diam., black; on the opposite side of the leaf the grey epidermis bulges out, and later becomes filled with stroma and becomes black. Between the two leaf surfaces lies a single large stroma (1–1 $\frac{1}{2}$ mm. diam.), which either remains unilocular, surrounded only by a broad, flat, stromatic border, or contains several loculi, and is then not surrounded by sterile stroma. Clypeus epidermal opaque, 15–25 μ thick, inner part of stroma and locular wall consisting of light brown prosenchyma. Locular wall thin, delicate. Loculi flattened spherical, 240–280 μ diam. (in stromata on *Bersama*, 320–450 μ diam.), 240–300 μ high, occupy from three-quarters to the whole of the thickness of the leaf; occasionally irregular in shape where a vascular bundle impinges on locular wall, dehiscing towards the upper leaf surface by an apical pore. Asci paraphysate, cylindrical to clavate, 60–70 $\mu \times$ 15–18 μ . Spores mono- or distichous, ellipsoid, hyaline, one-celled, rounded at both ends, 13–14 $\mu \times$ 7–8 μ .

41. *Phyllachora hieronymi* P. Henn.

Pilze Ostaf. apud. A. Engler, Die Pflanzenwelt-Ostafrikas, p. 34; Syll. Fung. XIV, p. 673.

On *Cyathea dregei*, Winters Kloof, Natal, 27.6.11, Doidge [1666].

Stromata epiphyllous, shiny black, often on the veins, slightly convex, 0.4–0.5 mm. diam., usually unilocular, penetrating right through the leaf. Clypeus epidermal, well developed, opaque, 30–33 μ thick. Locular wall brown, thin, 12–14 μ thick, often thinner at the sides. Loculus flat ellipsoid, 300–320 μ diam., 170 μ high. Asci paraphysate, clavate-cylindrical, briefly pedicellate, 65–70 $\mu \times$ 16–20 μ . Spores distichous, hyaline, oblong, 20–24 $\mu \times$ 7–8 μ .

42. *Phyllachora aberiae* P. Henn.

Engl. Bot. Jahrb., XLI (1908), p. 272; Syll. Fung. XXII, p. 411.

On *Doryalis caffra*, Driefontein, Zoutpansberg Dist., 12.8.11, Doidge [1813]; Uitenhage, C.P., 31.5.12, Pienaar [2420]; 17.10.06 [224].

Stromata epiphyllous, cellular, $\frac{3}{4}$ –1 mm. broad, shiny, black, subrotund to irregular, slightly raised, showing on the under side of the leaf as minute raised points on the discoloured leaf tissue. Leaf normally 280 μ thick, hypertrophied in the region of the stroma, 400–500 μ thick. Clypeus epidermal epiphyllous, continuous, 25–34 μ thick. Loculi under the clypeus in the mesophyll, flask-shaped, or spherical with a wide neck, the base of the loculi being one-half or two-thirds of the distance through the thickness of the leaf; surrounded by a brown, thick wall, which is 25–38 μ thick and formed of loosely interwoven hyphae; usually opening towards upper leaf surface, occasionally towards the lower, when it is covered by a short hypophyllous epidermal clypeus; occasionally two loculi on opposite sides of the leaf come into contact at their bases and are consequently flattened. Loculi 240–270 μ diam., or 250–280 μ high with a breadth of 200–220 μ . Between the necks of neighbouring loculi a loose hyphal stroma spreads inwards from the clypeus.

Asci ellipsoid, with monostichous, transverse, or partly distichous spores; seldom cylindrical with distichous or imbricate monostichous spores, shortly pedicellate, foot usually 8–10 μ long, rarely 22–30 μ long; asci 80–90 μ long and 12–20 μ broad, according to the arrangement of the spores, eight-spored, paraphysate. Paraphyses numerous. Spores cylindrical, rounded at both ends, 26–33 $\mu \times 4\frac{1}{2}$ –5 μ , hyaline, one-celled.

43. *Phyllachora amaniensis* P. Henn.

Engl. Bot. Jahrb. XXXVIII, 1905, p. 113; Syll. Fung. XXII, p. 420; Ann. Myc. XIII (1915), p. 473.

On leaves of *Ficus capensis*, Amanzimtoti, Natal, 19.3.14, Franks [7812]; Barberton Dist., 16.10.13, V. d. Bijl [7378]; Wyebank, Natal, 29.8.15, Doidge [9537].

This fungus was originally described on leaves of *Ficus* sp. collected at Amani, Usambara; the South African specimens agree with the description in all important particulars, but the spores are slightly narrower, the spores of the type being 7–8 μ wide.

Stromata epiphyllous, scattered or loosely arranged in groups $\frac{1}{2}$ –2 cm. diam., round or irregular, slightly raised, 1–1.5 mm. diam., dull black, not visible on upper surface, or showing as minute black pin-spots. Stroma originating in the lower part of the mesophyll, dividing the leaf into two very unequal portions, the lower narrower portion being pushed up by the developing stroma and forming an arch over it. Clypeus epidermal opaque, 25–35 μ thick. Loculi sub-spherical, less frequently flask-shaped, the narrowing in the latter case being due to crowding, deeply sunken in the leaf tissue, and occupying three-quarters or even more of the mesophyll. The base of the loculi usually rests on the palisade cells and the latter become filled with black, opaque stromatic tissue, which may or may not involve the upper epidermis. Loculi 240–400 μ diam., lateral walls delicate, 10–15 μ thick, consisting of light brown, rather thin-walled prosenchyma. Asci cylindrical with numerous paraphyses, 90–130 $\mu \times 9$ –11 μ , straight or curved, eight-spored. Spores monostichous, ellipsoid, rounded at both ends, hyaline, continuous, 14–17 $\mu \times 6$ –7 μ .

44. *Phyllachora Peltophori* Syd.

Ann. Myc. X (1912), p. 40; XIII (1915), p. 507.

On *Peltophorum africanum*, Ledzee, Zoutpansberg, 7.8.11, Doidge [1810].

Stromata on both surfaces of the pinnules, scattered or in groups, minute, about $\frac{1}{3}$ mm. diam., slightly convex, unilocular, smooth, shining. Loculi flattened, spherical, 200–250 μ diam., 160–180 μ high, covered above and below by the epidermal clypeus, which only extends a short distance beyond the loculi. Lateral locular wall weak or wanting. Asci clavate, paraphysate, 65–80 $\mu \times 14$ –18 μ . Spores distichous, ellipsoid, hyaline, rounded, 13–17 $\mu \times 6$ –8 μ .

45. *Phyllachora Lessertiae* n. sp.

On leaves of *Lessertia tenuifolia*, Smits Kraal, Boshof Dist., June, 1911, Burt-Davy [1568].

Stromata amphigenous and petiolar, but mostly epiphyllous, scattered or crowded, minute, up to 0.5 mm. diam., somewhat raised, dull black, mostly unilocular. Stroma reduced to a clypeus above each loculus, 100–120 μ broad, and certain hyphal strands and knots under the clypeus and extending beyond it in the sub-epidermal cells. Loculi sub-spherical to pyriform, 169–190 μ diam., 200–240 μ high, occupying about one-third of thickness of leaf. Locular wall about 15 μ thick, consisting of delicate, compressed, colourless hyphae, broader near apex and darker coloured, fusing above with clypeus. Asci eight-spored, paraphysate, cylindrical or narrow-ellipsoid, with a very short foot, 80–90 μ \times 12–16.5 μ . Periphyses present. Spores one-celled, hyaline, ellipsoid, rather thick-walled, obliquely monostichous or sub-distichous, 15–17 μ \times 8.5–10 μ .

Phyllachora Lessertiae Doidge, nov. sp.

Stromata plerumque epiphylla, sparsa, minuta, usque .5 mm. diam., vix vel leniter convexa, atra, clypeo epidermale, 100–120 μ lato, unilocularia. Loculi subglobosi v. pyriformi, 160–190 μ diam., 200–240 μ alti, parietibus circ. 15 μ crassis. Asci octospori, paraphysati, cylindraceuti, v. ellipsoidei, brevissime pedicellati, 80–90 μ \times 12–16.5 μ . Sporae continuae, hyalinae, ellipsoideae, utrinque rotundatae, 15–17 μ \times 8.5–10 μ .

46. *Phyllachorella rikatliensis* n. sp.

On leaves of *Andradia arborea*, Rikatli, P.E.A., September, 1918, Junod [11736].

Stromata minute, punctiform, about 0.3–0.5 mm. diam., amphigenous, penetrating right through the leaf, scattered over greater part of leaf surface or in round irregular patches about 5 mm. diam., black shining, slightly convex. Epidermal clypeus on both sides of leaf, black, opaque, about 20 μ thick, only extending a small distance on each side of the loculi. Inner part of stroma of usual prosenchymatous structure; in this the loculi are embedded. Stroma may contain a single flattened spherical loculus, 240–250 μ diam., 140–150 μ high, or a single pycnidium of similar dimensions. Very frequently the flattened spherical loculus is about 300 μ diam. and has a small lenticular pycnidium cut off from one surface; exceptionally, there are two smaller loculi and a pycnidium, the shape of each being an irregular cone on a curved base. Locular wall about 10 μ thick.

Asci aparaphysate, clavate, eight-spored, 50–60 μ \times 13–15 μ . Spores usually distichous, crowded in upper half of ascus, hyaline, one-celled, oblong, rounded at both ends, 10–13.5 μ \times 3.5–5 μ .

Conidia brown, oblong, continuous, 13.5–15 μ \times 6–7 μ .

Phyllachorella rikatliensis Doidge, nov. sp.

Stromata amphigena, minuta, circ. 0.3–0.5 mm. diam., atra, nitidula, leniter convexa. Loculi 1–3 in quoque stromate, sub-globosi v. compressi, 240–300 μ diam., 140–150 μ alti, clypeo atro, opaco, 20 μ crasso, parietibus 10 μ crassis. Asci aparaphysati, clavati, octospori, 50–60 μ \times 13–15 μ . Sporae plerumque distichae, hyalinae, continuae, oblongae, utrinque rotundatae, 10–13.5 μ \times 3.5–5 μ . Pycnidia loculis ascogenis similes, conidiis brunneis, oblongis, continuis 13.5–15 μ \times 6–7 μ .

Hab. in foliis *Andradiae arboreae*, Rikatli, P.E.A., 1918, leg. Junod [11726].

47. *Endothenella natalensis* n. sp.

On leaves of *Dalbergia armata*, Winklespruit, Natal, 6.7.12, Doidge [2513]; Verulam, Natal, 3.7.13, Pole Evans [6809].

Stromata epiphyllous, minute, punctiform about 0.3 mm. diam. or becoming larger by confluence, somewhat convex, black shiny, showing on the under-surface only as minute, brown blisters, uni- or bilocular. Clypeus epidermal, dark brown, sub-opaque, ca. 15 μ thick, spreading to a diameter of about 500 μ . Loculi sub-spherical to lenticular, 240–320 μ

diam. and 190–240 μ high, the base of the loculi being 30–45 μ from the lower surface of a leaf which is normally about 130 μ thick. Locular wall opaque, black, 13–16 μ thick, or somewhat lighter in colour and evidently prosenchymatous in structure. Loculi dehiscing by a apical pore opening towards upper side of leaf. In the bilocular stromata the space between the apices of the loculi is entirely filled with opaque, black, stromatal tissue. Asci paraphysate, eight-spored, ellipsoid or narrow cylindrical, straight or curved, 80–87 $\mu \times 15$ –17 μ , with a short foot 6–7 μ long. Spores distichous or obliquely monostichous, hyaline, two-celled, not constricted, fusiform, 20–23.5 $\mu \times 8$ –10 μ , wall about 1.5–2 μ thick, cells sub-equal, or upper cell 10 μ long, lower cell 13.5 μ long.

Endodothella natalensis Doidge, nov. sp.

Stromata epiphylla, minuta, rotundata, cir. 3 mm. diam. v. confluendi majores, leniter convexa, atra, nitidula. Loculi 1–2 in quoque stromati, sub-globosi v. globosi-depressi, 240–320 μ diam., 190–240 μ alti, totam fere folii crassitudinem occupantes, clypea, atro-brunneo, subopaco, ca. 15 μ crasso, 500 μ lato, parietibus opacis, atris, 13–16 μ crassis. Asci paraphysati, octospori, ellipsoidei v. cylindracei, recti v. curvati, 80–87 $\mu \times 15$ –17 μ , pede breve 6–7 μ long. Sporae distichae v. oblique monostichae, hyaline, 1-septatae, haud constrictae, fusiformae, 20–23.5 $\mu \times 8$ –10 μ , cellulis subaequalibus, v. supero 10 μ longo, infero 13.5 μ longo.

Hab. in foliis *Dalbergiae armatae*, Winklespruit, Natal, 6.7.12, leg. Doidge [2513].

48. *Endodothella strelitziae* (Cke.) Theiss. et Syd.

Ann. Myc. XIII (1915), p. 587.

Syn. *Dothidea strelitziae* Cke., Grevillea X., p. 120.

Phyllachora strelitziae Sacc., Syll. Fung. II., p. 606.

On leaves of *Strelitzia augusta*, Inanda, Natal, May, 1881, Medley Wood (Wood No. 580) [9468] and [10442]; Isipingo, Natal, 13.5.13, Doidge [6639]; Scottsburgh, Natal, 5.7.13, Pole Evans [6831]; Inanda, Natal, 13.9.13, V. d. Bijl [6958]; Kentani, 8.1.16, Pegler (Pegler No. 2384) [9422].

Stromata round, conical to hemispherical, 0.7–0.85 mm. diam., in groups of two to three, dull black, epiphyllous, unilocular, surrounded by a red brown zone in the leaf tissue; on the under side of the leaf only a wine-red discoloration is visible. The stroma fills the epidermis and the two sub-epidermal layers of elongated, flat cells, and raises these up to form an opaque clypeus, tearing them away from the adjacent layers of parenchyma. In the cavity thus formed the loculi are produced; they are covered by a clypeus formed from three layers of cells and about 100 μ thick; they are 650 μ diam. and 180 μ high; being separated at the base from the leaf parenchyma by a thin brown stromatic layer, the hyphae penetrating with the parenchyma in a more or less compact mass. Asci clavate, briefly pedicellate, paraphysate, 55–75 $\mu \times 13$ –16 μ , eight-spored. Spores distichous, oblong or clavate, hyaline, septate somewhat above the middle, not or slightly constricted, 14–17 $\mu \times 3$ –4 μ , upper cell shorter but broader, rounded, lower cell tapering somewhat.

49. *Oligostroma maculiformis* (Wint.) Doidge.

Syn. *Didymella maculiformis* Wint., Rab. Wint. Fung. Eur. 3056 (1884).

Oligostroma proteae Syd., Ann. Myc. XII (1914), p. 265; XIII (1915), p. 592.

On *Protea grandiflora*, near Capetown, June, 1884, MacOwan (Rab. Wint. Fung. Eur. 3056) [3396].

On *Protea flanaganii*, Kentani, 17.7.12, Pegler, 5163. (This is the type collection of *Oligostroma proteae* Syd.)

On *Protea neriifolia*, Bains Kloof, near Wellington, 19.11.10, Doidge [1026]; 5.4.12, Stoneman [2231].

On *Protea* spp., Wellington, 10.6.11, Mally [1589]; without locality [943].

(?) Stroma not fully developed on *Protea* sp., Kentani, 19.10.12, Pegler [5618], and on *Protea abyssinica*, Diepkloof, near Dullstroom, 19.9.10, Doidge [931].

This fungus is very variable in its external appearance, but after careful comparison I think there can be no doubt that *Oligostroma protea* Syd. on *Protea flanaganii* [5163] is identical with Winter's *Didymella maculiformis*. The variations mentioned in macroscopic characters are due to variations in the thickness of the cuticle of the host, rather than to any variations in the structure of the fungus.

Stromata amphigenous, forming discoloured, roughened areas on both sides of the leaf; these are usually irregular in outline and up to 10 mm. in diam. or larger by confluence; less frequently they are more or less circular and develop centrifugally. The stroma is reduced to an epidermal clypeus, 150–250 μ diam. over each loculus and the short scattered hyphal strands or knots under it. Sometimes the loculi are closely crowded and the clypeus over adjoining loculi becomes confluent, forming a more or less continuous stromal plate, or the loculi may be more scattered, solitary, or in twos and threes.

Loculi immersed, globose or ovate globose, 100–150 μ diam., locular wall consisting of small brown cells and fused at the apex with the epidermal clypeus. Asci sessile, cylindrical-clavate or clavate, 75–100 $\mu \times$ 16–20 μ , rounded at the apex, paraphysate, eight-spored. Spores distichous, oblong-cuneate, unequally uniseptate, not constricted, 24–28 μ long; upper loculus shorter, but more broadly rounded or ovate 8–10 μ long, 7–9 μ broad, lower loculus longer and narrower, 15–19 $\mu \times$ 6–8 μ , hyaline or sub-hyaline.

50. *Ophiodothella edax* (B. and Br.) V. Höhn.

Fragm. XII No. 630 (1910).

Syn. *Dothidea edax* B. et Br., Journ. Linn. Soc., 1873, p. 135.

Ophiodothis edax Sacc., Syll. Fung. II, p. 653.

On leaves of *Tephrosia elongata*, Olifantsfontein, Pretoria Dist., 21.2.20, Pienaar [12822].

This fungus was originally described on leaves of *Tephrosia suberosa* from Ceylon. The South African specimen agrees with the description of the original, except in the size of spores. These are said to average 33–35 $\mu \times$ 2·8–3·2 μ , but it is also stated that the asci are not quite ripe. It is probable, therefore, that the difference in the measurements of the spores is due to the fact that the present specimen is in a more mature condition.

Stromata minute, black, punctiform, formed in groups on large yellow leaf spots. There is an epidermal clypeus on both upper and under surfaces of the leaf, which is black, opaque, about 20 μ thick in the lower epidermis, 25–30 μ in the upper. There are 1–3 loculi in each stroma; these are flattened-spherical, 200–250 μ diam., 150–200 μ high, at base and apex united with the clypeus. The locular wall is 8–10 μ thick and consists of hyaline very much flattened cells. Asci numerous, paraphysate, eight-spored, thin-walled, pedicellate, clavate-ellipsoid, 70–80 $\mu \times$ 10–13 μ . Spores parallel, filiform, continuous, hyaline, straight or curved, thin-walled, cylindrical, somewhat attenuated towards the blunt ends, 45–60 $\mu \times$ 3–3·3 μ .